

AD-A091 493

COMMAND AND CONTROL TECHNICAL CENTER WASHINGTON DC

F/G 9/2

INSTITUTE FOR DEFENSE ANALYSES TACTICAL WARFARE (TACWAR) MODEL.--ETC(U)

SEP 77 M C FLYTHE, P FINNEGAN, J REIERSON

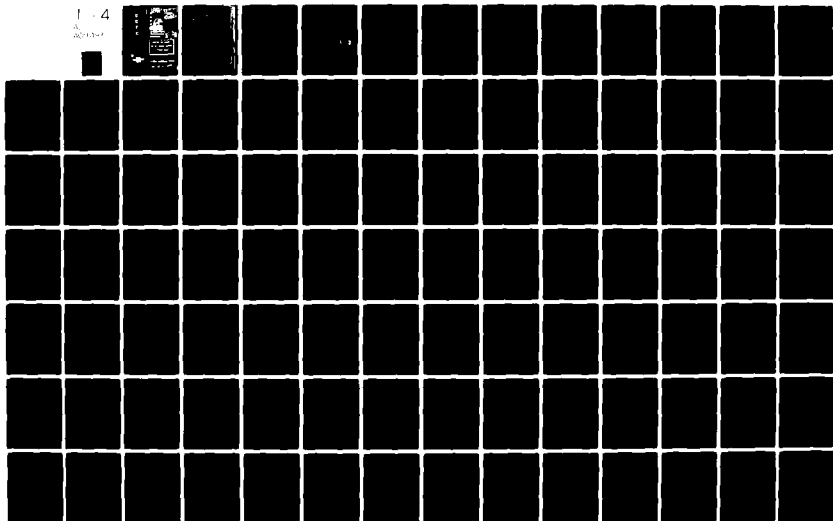
UNCLASSIFIED

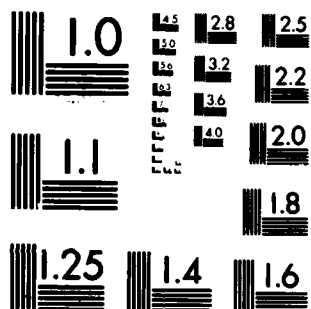
CCTC-CSM-MM-237-77

NL

1-4

AD-A091 493



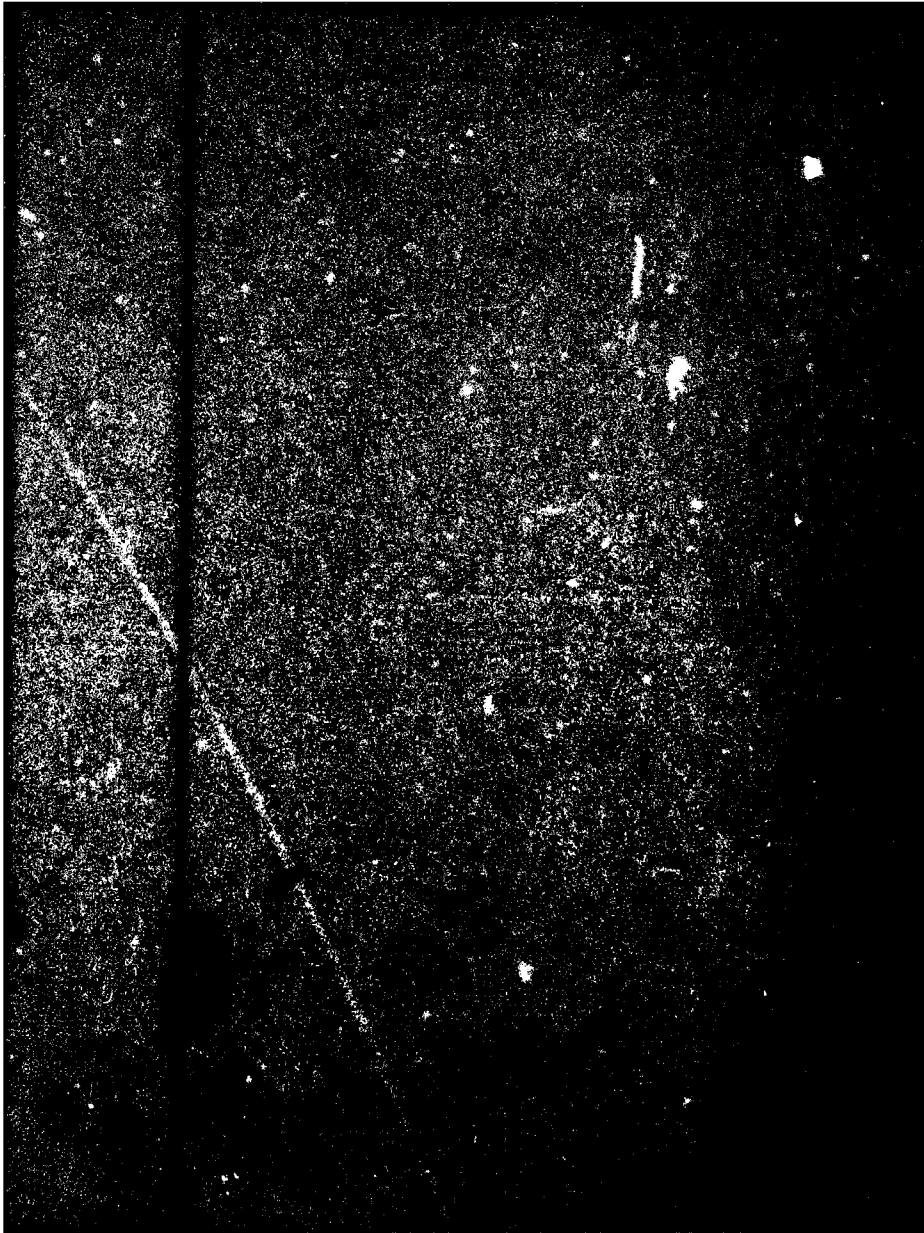


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

AD A091493

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited



COMMAND AND CONTROL TECHNICAL CENTER

Computer System Manual CSM-MM-237-77

6 September 1977

INSTITUTE FOR DEFENSE ANALYSES
TACTICAL WARFARE (TACWAR) MODEL.

Program Maintenance Manual.

Part III

Mary Catherine / Flythe
Pat / Finnegan
Sim / Reichen
Peter / Tuszynski

REVIEWED BY: Theresa / Tsang

APPROVED BY:

Randall B Saylor

CAPT RANDALL B. SAYLOR
Project Officer

R E Harshbarger

R. E. HARSHBARGER
Acting Deputy Director
NMCS ADP

Copies of this document may be obtained from the Defense
Documentation Center, Cameron Station, Alexandria, VA 22314.

DISTRIBUTION STATEMENT A

Approved for public release
Distribution Unlimited

409658

JP

ACKNOWLEDGMENT

This manual was prepared for the Command and Control Technical Center (CCTC) under the direction of the Chief for Military Studies and Analysis with technical support provided by Computer Sciences Corporation under Contract Number DCA 100-74-C-0002.

Accession For	
DTIC GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By <i>Per Ltr. on file</i>	
Distribution/ <i>(FL-88/80-2301, dtd 17 Oct 80)</i>	
Availability Codes	
Dist	Avail and/or Special
<i>A</i>	

DTIC
ELECTE
NOV 13 1980
S D D

CONTENTS

Section	Page
ACKNOWLEDGMENT	ii
ABSTRACT	xx
GLOSSARY	xxi
1. GENERAL	1
1.1 Purpose	1
1.2 System Application	1
1.3 Equipment Environment	3
1.4 Programming Conventions	3
2. SYSTEM DESCRIPTION	5
2.1 General Description	5
2.1.1 Theater Structure	5
2.1.1.1 Sectors	5
2.1.1.2 Battle Areas	11
2.1.1.3 Regions	14
2.1.1.4 COMMZ	15
2.1.1.5 Summary of Structure Functions	15
2.1.2 Supplies Transportation Network	16
2.1.2.1 Design of the Network	16
2.1.2.2 Construction of an Actual Network	19
2.1.2.3 Usage of the Network	20
2.1.3 Resources	21
2.1.3.1 Ground Resources	21
2.1.3.2 Air Resources	22
2.1.3.3 Target Acquisition Resources	22
2.1.3.4 Nuclear Resources	23
2.1.3.5 Chemical Resources	23
2.1.4 Air Combat Simulation	24
2.1.5 Target Acquisition Simulation	27
2.1.6 Nuclear Warfare Simulation	29
2.1.7 Chemical Warfare Simulation	31
2.1.8 Ground Combat Simulation	33
2.1.9 Theater Control Simulation	35

Section

Page

2.1.10	Supplies Transportation Simula- tion	37
2.1.11	Remote Terminal Capability	39
2.2	Detailed Description	41
2.2.1	Root Segment	55
2.2.1.1	TMAIN	55
2.2.1.1.1	Programming Specifications	55
2.2.1.1.2	Logic Functions	55
2.2.1.2	EIGENV	58
2.2.1.2.1	Programming Specifications	59
2.2.1.2.2	Logic Functions	60
2.2.1.3	MPROD	62
2.2.1.3.1	Programming Specifications	62
2.2.1.3.2	Logic Functions	62
2.2.1.4	CNTRYC	63
2.2.1.4.1	Programming Specifications	63
2.2.1.4.2	Logic Functions	63
2.2.1.5	CVFW	63
2.2.1.5.1	Programming Specifications	64
2.2.1.5.2	Logic Functions	64
2.2.1.6	SECWTH	65
2.2.1.6.1	Programming Specifications	65
2.2.1.6.2	Logic Functions	66
2.2.1.7	GDIST	67
2.2.1.7.1	Programming Specifications	67
2.2.1.7.2	Logic Functions	68
2.2.1.8	TAG	68
2.2.1.8.1	Programming Specifications	68
2.2.1.8.2	Logic Functions	69
2.2.1.9	APORTN	71
2.2.1.9.1	Programming Specifications	71
2.2.1.9.2	Logic Functions	71
2.2.1.10	CLR	72
2.2.1.10.1	Programming Specifications	72
2.2.1.10.2	Logic Functions	73
2.2.2	LINKA	74
2.2.2.1	TZERO	74
2.2.2.1.1	Programming Specifications	74
2.2.2.1.2	Logic Functions	74
2.2.2.2	INP	74
2.2.2.2.1	Programming Specifications	75
2.2.2.2.2	Logic Functions	75
2.2.2.3	TCTZ	78
2.2.2.3.1	Programming Specifications	78
2.2.2.3.2	Logic Functions	79

Section

Page

2.2.3	LINKB	82
2.2.3.1	WTZERO	82
2.2.3.1.1	Programming Specifications .	82
2.2.3.1.2	Logic Functions	82
2.2.3.2	GCOUT	82
2.2.3.2.1	Programming Specifications .	82
2.2.3.2.2	Logic Functions	82
2.2.3.3	TCOUT	84
2.2.3.3.1	Programming Specifications .	84
2.2.3.3.2	Logic Functions	84
2.2.3.4	SPLYOT	85
2.2.3.4.1	Programming Specifications .	85
2.2.3.4.2	Logic Functions	85
2.2.4	LINKC	87
2.2.4.1	WTONE	87
2.2.4.1.1	Programming Specifications .	87
2.2.4.1.2	Logic Functions	87
2.2.4.2	NUCOUT	87
2.2.4.2.1	Programming Specifications .	87
2.2.4.2.2	Logic Functions	88
2.2.4.3	CHOUT	88
2.2.4.3.1	Programming Specifications .	88
2.2.4.3.2	Logic Functions	89
2.2.4.4	TACQOT	89
2.2.4.4.1	Programming Specifications .	89
2.2.4.4.2	Logic Functions	90
2.2.5	LINKD	91
2.2.5.1	AIRMOD	91
2.2.5.1.1	Programming Specifications .	91
2.2.5.1.2	Logic Functions	91
2.2.5.2	BINFAC	93
2.2.5.2.1	Programming Specifications .	93
2.2.5.2.2	Logic Functions	95
2.2.5.3	BINOAT	95
2.2.5.3.1	Programming Specifications .	95
2.2.5.3.2	Logic Functions	96
2.2.5.4	ATSPSS	97
2.2.5.4.1	Programming Specifications .	97
2.2.5.4.2	Logic Functions	99
2.2.5.5	ATRTED	100
2.2.5.5.1	Programming Specifications .	100
2.2.5.5.2	Logic Functions	102
2.2.5.6	ATRTSA	102
2.2.5.6.1	Programming Specifications .	102
2.2.5.6.2	Logic Functions	104

Section

Page

2.2.5.7	ATRTDA	104
2.2.5.7.1	Programming Specifications	104
2.2.5.7.2	Logic Functions	108
2.2.5.8	ATRTSS	108
2.2.5.8.1	Programming Specifications	108
2.2.5.8.2	Logic Functions	111
2.2.5.9	ALLOCT	111
2.2.5.9.1	Programming Specifications	111
2.2.5.9.2	Logic Functions	112
2.2.5.10	DEG	115
2.2.5.10.1	Programming Specifications	115
2.2.5.10.2	Logic Functions	115
2.2.5.11	AIRATT	116
2.2.5.11.1	Programming Specifications	116
2.2.5.11.2	Logic Functions	117
2.2.5.12	AOVL1	118
2.2.5.12.1	Programming Specifications	118
2.2.5.12.2	Logic Functions	118
2.2.5.13	ATTR1	119
2.2.5.13.1	Programming Specifications	119
2.2.5.13.2	Logic Functions	120
2.2.5.14	AOVL2	121
2.2.5.14.1	Programming Specifications	121
2.2.5.14.2	Logic Functions	121
2.2.5.15	ATTR2	122
2.2.5.15.1	Programming Specifications	122
2.2.5.15.2	Logic Functions	122
2.2.5.16	ATTR3	123
2.2.5.16.1	Programming Specifications	123
2.2.5.16.2	Logic Functions	123
2.2.5.17	ATTR4	124
2.2.5.17.1	Programming Specifications	124
2.2.5.17.2	Logic Functions	125
2.2.5.18	ATTR5	126
2.2.5.18.1	Programming Specifications	126
2.2.5.18.2	Logic Functions	126
2.2.5.19	ATTR6	127
2.2.5.19.1	Programming Specifications	127
2.2.5.19.2	Logic Functions	127
2.2.5.20	ATRTWH	129
2.2.5.20.1	Programming Specifications	129
2.2.5.20.2	Logic Functions	130

Section

Page

2.2.6 LINKE	132
2.2.6.1 NUC	132
2.2.6.1.1 Programming Specifications	132
2.2.6.1.2 Logic Functions	132
2.2.6.2 BLKDA	132
2.2.6.2.1 Programming Specifications	132
2.2.6.2.2 Logic Functions	133
2.2.6.3 KCDEN	133
2.2.6.3.1 Programming Specifications	133
2.2.6.3.2 Logic Functions	133
2.2.6.4 KDCDEN	134
2.2.6.4.1 Programming Specifications	134
2.2.6.4.2 Logic Functions	134
2.2.6.5 NUC1	134
2.2.6.5.1 Programming Specifications	135
2.2.6.5.2 Logic Functions	135
2.2.6.6 ESCLAT	135
2.2.6.6.1 Programming Specifications	135
2.2.6.6.2 Logic Functions	135
2.2.6.7 WHINUP	138
2.2.6.7.1 Programming Specifications	138
2.2.6.7.2 Logic Functions	138
2.2.6.8 NDSYINV	139
2.2.6.8.1 Programming Specifications	139
2.2.6.8.2 Logic Functions	140
2.2.6.9 NUC2	141
2.2.6.9.1 Programming Specifications	141
2.2.6.9.2 Logic Functions	142
2.2.6.10 NUCTAR	142
2.2.6.10.1 Programming Specifications	142
2.2.6.10.2 Logic Functions	142
2.2.6.11 NUCWPS	143
2.2.6.11.1 Programming Specifications	143
2.2.6.11.2 Logic Functions	143
2.2.6.12 NWHINV	145
2.2.6.12.1 Programming Specifications	145
2.2.6.12.2 Logic Functions	145
2.2.6.13 NUC3	146
2.2.6.13.1 Programming Specifications	146
2.2.6.13.2 Logic Functions	146
2.2.6.14 NUC4	147
2.2.6.14.1 Programming Specifications	147
2.2.6.14.2 Logic Functions	147

Section

Page

2.2.6.15	NUC5	148
2.2.6.15.1	Programming Specifications .	149
2.2.6.15.2	Logic Functions	149
2.2.6.16	ZNDST	149
2.2.6.16.1	Programming Specifications .	149
2.2.6.16.2	Logic Functions	150
2.2.6.17	NUCABS	150
2.2.6.17.1	Programming Specifications .	150
2.2.6.17.2	Logic Functions	151
2.2.6.18	NBFTGS	152
2.2.6.18.1	Programming Specifications .	152
2.2.6.18.2	Logic Functions	153
2.2.6.19	NRGTGS	153
2.2.6.19.1	Programming Specifications .	153
2.2.6.19.2	Logic Functions	154
2.2.6.20	NCZTGS	155
2.2.6.20.1	Programming Specifications .	155
2.2.6.20.2	Logic Functions	156
2.2.6.21	PREYLD	157
2.2.6.21.1	Programming Specifications .	157
2.2.6.21.2	Logic Functions	158
2.2.6.22	DWHINV	159
2.2.6.22.1	Programming Specifications .	159
2.2.6.22.2	Logic Functions	160
2.2.6.23	NUC6	160
2.2.6.23.1	Programming Specifications .	160
2.2.6.23.2	Logic Functions	161
2.2.6.24	DAMEVL	161
2.2.6.24.1	Programming Specifications .	161
2.2.6.24.2	Logic Functions	162
2.2.6.25	PAREA	172
2.2.6.25.1	Programming Specifications .	173
2.2.6.25.2	Logic Functions	174
2.2.6.26	FN	174
2.2.6.26.1	Programming Specifications .	174
2.2.6.26.2	Logic Functions	174
2.2.6.27	PREFN	175
2.2.6.27.1	Programming Specifications .	175
2.2.6.27.2	Logic Functions	175
2.2.6.28	QKINR	176
2.2.6.28.1	Programming Specifications .	176
2.2.6.28.2	Logic Functions	176
2.2.6.29	DOSLIM	176
2.2.6.29.1	Programming Specifications .	176
2.2.6.29.2	Logic Functions	177

Section

Page

2.2.6.30 WRAD	177
2.2.6.30.1 Programming Specifications	177
2.2.6.30.2 Logic Functions	178
2.2.6.31 WRADV	178
2.2.6.31.1 Programming Specifications	178
2.2.6.31.2 Logic Functions	179
2.2.6.32 OFFCOV	179
2.2.6.32.1 Programming Specifications	179
2.2.6.32.2 Logic Functions	180
2.2.6.33 SIMCN	181
2.2.6.33.1 Programming Specifications	181
2.2.6.33.2 Logic Functions	181
2.2.6.34 SIRCOV	182
2.2.6.34.1 Programming Specifications	182
2.2.6.34.2 Logic Functions	183
2.2.6.35 CIRCOV	183
2.2.6.35.1 Programming Specifications	183
2.2.6.35.2 Logic Functions	184
2.2.7 LINKF	186
2.2.7.1 CHEM	186
2.2.7.1.1 Programming Specifications	186
2.2.7.1.2 Logic Functions	186
2.2.7.2 KCODE	187
2.2.7.2.1 Programming Specifications	187
2.2.7.2.2 Logic Functions	187
2.2.7.3 KDCODE	187
2.2.7.3.1 Programming Specifications	187
2.2.7.3.2 Logic Functions	188
2.2.7.4 CHEM6	188
2.2.7.4.1 Programming Specifications	188
2.2.7.4.2 Logic Functions	189
2.2.7.5 CHEMLEV	189
2.2.7.5.1 Programming Specifications	189
2.2.7.5.2 Logic Functions	189
2.2.7.6 EQUIP	192
2.2.7.6.1 Programming Specifications	192
2.2.7.6.2 Logic Functions	192
2.2.7.7 CHEMSUP	194
2.2.7.7.1 Programming Specifications	194
2.2.7.7.2 Logic Functions	194
2.2.7.8 DECON	195
2.2.7.8.1 Programming Specifications	195
2.2.7.8.2 Logic Functions	196
2.2.7.9 CHEM1	196
2.2.7.9.1 Programming Specifications	196
2.2.7.9.2 Logic Functions	196

Section

Page

2.2.7.10	CHEMTAR	197
2.2.7.10.1	Programming Specifications .	197
2.2.7.10.2	Logic Functions	197
2.2.7.11	CHEMWPS	197
2.2.7.11.1	Programming Specifications .	198
2.2.7.11.2	Logic Functions	198
2.2.7.12	NCRINV	199
2.2.7.12.1	Programming Specifications .	199
2.2.7.12.2	Logic Functions	200
2.2.7.13	CHEM2	200
2.2.7.13.1	Programming Specifications .	200
2.2.7.13.2	Logic Functions	201
2.2.7.14	CHEM3	201
2.2.7.14.1	Programming Specifications .	202
2.2.7.14.2	Logic Functions	202
2.2.7.15	CHEM4	203
2.2.7.15.1	Programming Specifications .	203
2.2.7.15.2	Logic Functions	204
2.2.7.16	DUCINV	204
2.2.7.16.1	Programming Specifications .	204
2.2.7.16.2	Logic Functions	205
2.2.7.17	BFTGTS	205
2.2.7.17.1	Programming Specifications .	205
2.2.7.17.2	Logic Functions	206
2.2.7.18	RGTGTS	208
2.2.7.18.1	Programming Specifications .	208
2.2.7.18.2	Logic Functions	208
2.2.7.19	CZTGTS	210
2.2.7.19.1	Programming Specifications .	210
2.2.7.19.2	Logic Functions	211
2.2.7.20	PREAGDM	212
2.2.7.20.1	Programming Specifications .	212
2.2.7.20.2	Logic Functions	212
2.2.7.21	KADMC	213
2.2.7.21.1	Programming Specifications .	214
2.2.7.21.2	Logic Functions	214
2.2.7.22	AIRBASE	215
2.2.7.22.1	Programming Specifications .	215
2.2.7.22.2	Logic Functions	216
2.2.7.23	CHEM5	217
2.2.7.23.1	Programming Specifications .	217
2.2.7.23.2	Logic Functions	218
2.2.7.24	CHEMDAM	218
2.2.7.24.1	Programming Specifications .	219
2.2.7.24.2	Logic Functions	219

Section	Page
2.2.7.25 DROPS	240
2.2.7.25.1 Programming Specifications .	240
2.2.7.25.2 Logic Functions	241
2.2.7.26 LINFR	242
2.2.7.26.1 Programming Specifications .	242
2.2.7.26.2 Logic Functions	242
2.2.8 LINKG	245
2.2.8.1 TARACQ	245
2.2.8.1.1 Programming Specifications .	245
2.2.8.1.2 Logic Functions	245
2.2.8.2 TARACA	245
2.2.8.2.1 Programming Specifications .	245
2.2.8.2.2 Logic Functions	246
2.2.8.3 TARACE	249
2.2.8.3.1 Programming Specifications .	250
2.2.8.3.2 Logic Functions	251
2.2.8.4 TADPAR	251
2.2.8.4.1 Programming Specifications .	251
2.2.8.4.2 Logic Functions	252
2.2.8.5 BLKDATA	253
2.2.8.5.1 Programming Specifications .	253
2.2.8.5.2 Logic Functions	253
2.2.9 LINKH	254
2.2.9.1 GROUND	254
2.2.9.1.1 Programming Specifications .	254
2.2.9.1.2 Logic Functions	254
2.2.9.2 GC	254
2.2.9.2.1 Programming Specifications .	254
2.2.9.2.2 Logic Functions	255
2.2.9.3 FEBAMT	261
2.2.9.3.1 Programming Specifications .	261
2.2.9.3.2 Logic Functions	261
2.2.10 LINKI	265
2.2.10.1 AIRGRD	265
2.2.10.1.1 Programming Specifications .	265
2.2.10.1.2 Logic Functions	265
2.2.10.2 ATRTAB	268
2.2.10.2.1 Programming Specifications .	268
2.2.10.2.2 Logic Functions	270
2.2.10.3 QRAFIL	273
2.2.10.3.1 Programming Specifications .	274
2.2.10.3.2 Logic Functions	274
2.2.10.4 ASGATR	277
2.2.10.4.1 Programming Specifications .	277
2.2.10.4.2 Logic Functions	278

Section

Page

2.2.11	LINKJ	280
2.2.11.1	PSAIR	280
2.2.11.1.1	Programming Specifications	280
2.2.11.1.2	Logic Functions	280
2.2.12	LINKK	282
2.2.12.1	TC	282
2.2.12.1.1	Programming Specifications	283
2.2.12.1.2	Logic Functions	284
2.2.12.2	IIBA	300
2.2.12.2.1	Programming Specifications	300
2.2.12.2.2	Logic Functions	301
2.2.12.3	NXDIV	301
2.2.12.3.1	Programming Specifications	301
2.2.12.3.2	Logic Functions	302
2.2.12.4	AIRASG	302
2.2.12.4.1	Programming Specifications	302
2.2.12.4.2	Logic Functions	302
2.2.13	LINKL	306
2.2.13.1	SUPPLY	306
2.2.13.1.1	Programming Specifications	306
2.2.13.1.2	Logic Functions	306
2.2.13.2	TRANPO	309
2.2.13.2.1	Programming Specifications	312
2.2.13.2.2	Logic Functions	313
2.2.13.3	INPUT	313
2.2.13.3.1	Programming Specifications	313
2.2.13.3.2	Logic Functions	314
2.2.13.4	INSOL	315
2.2.13.4.1	Programming Specifications	315
2.2.13.4.2	Logic Functions	315
2.2.13.5	LABEL1	316
2.2.13.5.1	Programming Specifications	316
2.2.13.5.2	Logic Functions	316
2.2.13.6	LABEL2	317
2.2.13.6.1	Programming Specifications	317
2.2.13.6.2	Logic Functions	318
2.2.13.7	MAIN	320
2.2.13.7.1	Programming Specifications	320
2.2.13.7.2	Logic Functions	321
2.2.13.8	CYCLE	321
2.2.13.8.1	Programming Specifications	322
2.2.13.8.2	Logic Functions	322
2.2.13.9	FIXLIJ	325
2.2.13.9.1	Programming Specifications	325
2.2.13.9.2	Logic Functions	325

Section	Page
2.2.13.10 IJFIX	326
2.2.13.10.1 Programming Specifications	326
2.2.13.10.2 Logic Functions	327
2.2.13.11 OUTPUT	328
2.2.13.11.1 Programming Specifications	328
2.2.13.11.2 Logic Functions	328
2.2.13.12 BLOCK1	329
2.2.13.12.1 Programming Specifications	329
2.2.13.12.2 Logic Functions	329
2.2.14 LINKM	330
2.2.14.1 TIMET	330
2.2.14.1.1 Programming Specifications	330
2.2.14.1.2 Logic Functions	330
2.2.14.2 ASSIGN	331
2.2.14.2.1 Programming Specifications	332
2.2.14.2.2 Logic Functions	332
2.2.14.3 IRATIO	341
2.2.14.3.1 Programming Specifications	341
2.2.14.3.2 Logic Functions	341
2.2.14.4 IFEB	342
2.2.14.4.1 Programming Specifications	342
2.2.14.4.2 Logic Functions	342
2.2.15 LINKN	344
2.2.15.1 PSUMMY	344
2.2.15.1.1 Programming Specifications	344
2.2.15.1.2 Logic Functions	344
3. INPUT/OUTPUT DESCRIPTION	347
3.1 General Description	347
3.2 Characteristics, Organization, and Detailed Description	347
3.2.1 Input and Working Files	350
3.2.1.1 Input File MIT (User-Selected Data)	350
3.2.1.1.1 Types 1 and 2 Data	350
3.2.1.1.2 Unit Assignment Data	354
3.2.1.2 Working File ITTD (Time-T Data)	354
3.2.1.3 Input File IAD (Airbase Data)	356
3.2.2 Output Files	357
3.2.2.1 Output File JINP	357
3.2.2.1.1 Alphabetic Listing of Initial Data	357
3.2.2.1.2 Theater Control Initialized Data	360
3.2.2.1.3 Tabular Records of Inputs	360

Section	Page
3.2.2.2 Output Files JCON, JCHEM, JNUC (Detailed Reports)	360
3.2.2.3 Output File JSUM (Summary Report)	360
3.3 Program Variables	368
4. PROGRAM ASSEMBLY, LOADING, AND MAINTENANCE PROCEDURES	373
4.1 Procedures	373
4.1.1 Offline Routines	373
4.1.1.1 Routine for Changing Blank Common	373
4.1.1.2 Routines for Reading Airbase Data Tapes	378
4.1.1.2.1 Program NOTION	378
4.1.1.2.2 Program AFLDS	378
4.1.2 TACWAR H* File	378
4.1.3 TSS JCL File	380
4.2 Warning and Error Messages	384
4.2.1 Warning Messages	384
4.2.1.1 Subroutine EIGENV Messages	384
4.2.1.2 Subroutine INP Messages	384
4.2.1.3 Subroutine CHEMDAM Messages	385
4.2.1.4 Subroutine QRAFIL Messages	385
4.2.2 Error Messages	385
4.2.2.1 STOP 201 (in INP)	386
4.2.2.2 STOP 1 (in EIGENV)	386
4.2.2.3 STOP 2 (in TAG)	386
4.2.2.4 STOP 60 (in APORTN)	386
4.2.2.5 STOP 11111 (in TC)	387
4.2.2.6 STOP 133 (in ASSIGN)	387
REFERENCES	389
BIBLIOGRAPHY	391
<i>Partial contents:</i>	
APPENDIXES	
A. Flowcharts of TACWAR Routines (Excluding Block Data Routines)	393
B. Instructions for Obtaining Source Listings of TACWAR	601
C. Source Listing of Preprocessor Routine COMM	603
D. Execution Procedures for the TACWAR Model;	609
E. Alphabetic Listing of TACWAR Variables;	627
F. Variables by Function, and;	789
G. Cross-Reference Table of Common Variables and Subroutines That Use or Modify Them	799

Section	Page
DISTRIBUTION	923
DD Form 1473	925

ILLUSTRATIONS

Figure		Page
1	TACWAR Macroflowchart	6
2	TACWAR Theater Structure (Blue Side)	10
3	Sector Boundaries	12
4	Distances and Widths Through a Sector	13
5	The Supplies Transportation Network	17
6	TACWAR Link Overlay Structure	42
7	Sample Transportation Matrix	311
8	Sample Stepping-Stone Path	319
9	TACWAR Information Flow	348
10	Formats for TACWAR Input Variables	351
11	Excerpt from Sample Input Data	352
12	Sample Alphabetic Listing of Input Variables	359
13	Sample Input Record Table	361
14	Sample Page From Detailed Game Report	367
15	Sample Summary Game Report	369
16	Procedures for Updating TACWAR Routines To Reflect Changes to Blank Common	375
17	Deck Structure for Creating TACWAR H* File	381
18	Example of JCL File for Executing TACWAR From the Terminal	382
19	Flowchart of TACWAR Routine TMAIN	396
20	Flowchart of TACWAR Routine EIGENV	398
21	Flowchart of TACWAR Routine MPROD	399
22	Flowchart of TACWAR Routine CNTRYC	400
23	Flowchart of TACWAR Routine CVFW	401
24	Flowcharts of TACWAR Routines SECWTH and GDIST	402
25	Flowchart of TACWAR Routine TAG	403
26	Flowchart of TACWAR Routine APORTN	404
27	Flowchart of TACWAR Routine CLR	406
28	Flowchart of TACWAR Routine TZERO	407
29	Flowchart of TACWAR Routine INP	408
30	Flowchart of TACWAR Routine TCTZ	411

Figure		Page
31	Flowcharts of TACWAR Routines WTZERO, GCOUT, TCOUT, and SPLYOT	413
32	Flowcharts of TACWAR Routines WTONE, NUCOUT, CHOUT, and TACQOT	414
33	Flowchart of TACWAR Routine AIRMOD	415
34	Flowchart of TACWAR Routine BINFAC	417
35	Flowchart of TACWAR Routine BINOAT	418
36	Flowchart of TACWAR Routine ATSPSS	419
37	Flowchart of TACWAR Routine ATRTED	420
38	Flowchart of TACWAR Routine ATRTSA	421
39	Flowchart of TACWAR Routine ATRTDA	422
40	Flowchart of TACWAR Routine ATRTSS	424
41	Flowchart of TACWAR Routine ALLOCT	425
42	Flowchart of TACWAR Routine DEG	431
43	Flowchart of TACWAR Routine AIRATT	433
44	Flowchart of TACWAR Routine AOV11	434
45	Flowchart of TACWAR Routine ATTR1	436
46	Flowchart of TACWAR Routine AOV12	437
47	Flowchart of TACWAR Routine ATTR2	438
48	Flowchart of TACWAR Routine ATTR3	439
49	Flowchart of TACWAR Routine ATTR4	440
50	Flowchart of TACWAR Routine ATTR5	441
51	Flowchart of TACWAR Routine ATTR6	442
52	Flowchart of TACWAR Routine ATRTWH	444
53	Flowchart of TACWAR Routine NUC	445
54	Flowcharts of TACWAR Routines KCDEN and KDCDEN	446
55	Flowchart of TACWAR Routine NUC1	447
56	Flowchart of TACWAR Routine ESCLAT	448
57	Flowchart of TACWAR Routine WHINUP	450
58	Flowchart of TACWAR Routine NDSYINV	452
59	Flowchart of TACWAR Routine NUC2	455
60	Flowchart of TACWAR Routine NUCTAR	456
61	Flowchart of TACWAR Routine NUCWPS	457
62	Flowchart of TACWAR Routine NWHINV	459
63	Flowchart of TACWAR Routine NUC3	460
64	Flowchart of TACWAR Routine NUC4	461
65	Flowchart of TACWAR Routine NUC5	462
66	Flowchart of TACWAR Routine ZNDST	463
67	Flowchart of TACWAR Routine NUCABS	464
68	Flowchart of TACWAR Routine NBFTGS	465
69	Flowchart of TACWAR Routine NRG TGS	466
70	Flowchart of TACWAR Routine NCZTGS	469
71	Flowchart of TACWAR Routine PREYLD	471
72	Flowchart of TACWAR Routine DWHINV	473

Figure		Page
73	Flowchart of TACWAR Routine NUC6	474
74	Flowchart of TACWAR Routine DAMEVL	476
75	Flowchart of TACWAR Routine PAREA	483
76	Flowchart of TACWAR Function FN	484
77	Flowchart of TACWAR Routine PREFN	485
78	Flowchart of TACWAR Routine QKINR	486
79	Flowchart of TACWAR Routine DOSLIM	487
80	Flowchart of TACWAR Function WRAD	488
81	Flowchart of TACWAR Routine WRADVN	489
82	Flowchart of TACWAR Routine OFFCOV	490
83	Flowchart of TACWAR Routine SIMCN	491
84	Flowchart of TACWAR Routine SIRCOV	492
85	Flowchart of TACWAR Routine CIRCOV	494
86	Flowchart of TACWAR Routine CHEM	495
87	Flowcharts of TACWAR Routines KCODE and KDCODE	496
88	Flowchart of TACWAR Routine CHEM6	497
89	Flowchart of TACWAR Routine CHEMLEV	498
90	Flowchart of TACWAR Routine EQUIP	500
91	Flowchart of TACWAR Routine CHEMSUP	503
92	Flowchart of TACWAR Routine DECON	505
93	Flowchart of TACWAR Routine CHEM1	506
94	Flowchart of TACWAR Routine CHEMTAR	507
95	Flowchart of TACWAR Routine CHEMWPS	508
96	Flowchart of TACWAR Routine NCRINV	510
97	Flowchart of TACWAR Routine CHEM2	511
98	Flowchart of TACWAR Routine CHEM3	512
99	Flowchart of TACWAR Routine CHEM4	513
100	Flowchart of TACWAR Routine DUCINV	514
101	Flowchart of TACWAR Routine BFTGTS	515
102	Flowchart of TACWAR Routine RGTGTS	517
103	Flowchart of TACWAR Routine CZTGTS	520
104	Flowchart of TACWAR Routine PREAGDM	522
105	Flowchart of TACWAR Routine KADMC	525
106	Flowchart of TACWAR Routine AIRBASE	527
107	Flowchart of TACWAR Routine CHEM5	528
108	Flowchart of TACWAR Routine CHEMDAM	530
109	Flowchart of TACWAR Routine DROPS	548
110	Flowchart of TACWAR Routine LINFR	549
111	Flowchart of TACWAR Routine TARACQ	550
112	Flowchart of TACWAR Routine TARACA	551
113	Flowchart of TACWAR Routine TARACE	555
114	Flowchart of TACWAR Routine TADPAR	556
115	Flowchart of TACWAR Routine GROUND	557
116	Flowchart of TACWAR Routine GC	558

Figure		Page
117	Flowchart of TACWAR Routine FEBAMT	561
118	Flowchart of TACWAR Routine AIRGRD	564
119	Flowchart of TACWAR Routine ATRTAB	566
120	Flowchart of TACWAR Routine QRAFIL	567
121	Flowchart of TACWAR Routine ASGATR	569
122	Flowchart of TACWAR Routine PSAIR	571
123	Flowchart of TACWAR Routine TC	572
124	Flowcharts of TACWAR Routines IIBA and NXDIV	575
125	Flowchart of TACWAR Routine AIRASG	576
126	Flowcharts of TACWAR Routines SUPPLY and TRANPO	578
127	Flowcharts of TACWAR Routines INPUT and INSOL	579
128	Flowchart of TACWAR Routine LABEL1	580
129	Flowchart of TACWAR Routine LABEL2	582
130	Flowchart of TACWAR Routine MAIN	584
131	Flowchart of TACWAR Routine CYCLE	585
132	Flowchart of TACWAR Routine FIXLIJ	588
133	Flowchart of TACWAR Routine IJFIX	590
134	Flowchart of TACWAR Routine OUTPUT	592
135	Flowchart of TACWAR Routine TIMET	593
136	Flowchart of TACWAR Routine ASSIGN	594
137	Flowcharts of TACWAR Routines IRATIO and IFEBA	598
138	Flowchart of TACWAR Routine PSUMMY	599
139	Sample Card Deck To Create TACWAR Data Files.	611
140	Sample Card Deck To Execute TACWAR Using Data Files	612
141	Sample Card Deck To Execute TACWAR Using Punched Data Decks	613
142	Sample Card Deck To Execute TACWAR Using Tape Files	614
143	Sample Card Deck To Execute TACWAR Using Data Files and To Redirect Output to a Remote Printer	615
144	Sample Card Deck To Update Existing Data Files and To Execute TACWAR	616
145	Sample Terminal Session To Alter and Execute the TSS JCL File	623

TABLES

Number		Page
1	Maximum Values for TACWAR Limits	8
2	Air Model Interactions Between Attackers and Defenders	25
3	TACWAR Program Calling Structure	45
4	TACWAR Labeled Common Blocks	52
5	Assignment Options for Arriving Units . . .	333
6	File Codes Assigned to the TACWAR Input/ Output Files	349
7	Output Files Used in the TACWAR Model . . .	358
8	Listing of Input Table Headings	362
9	Listing of Summary Report Headings	370
10	Definition of Array IVARQ	377
11	TACWAR System Files	379
12	Input and Summary Output Working Variables by Submodel and Function	791
13	Cross-Reference Tables for Root Programs and the Three Links for TZERO, WTZERO, and AIRMOD	801
14	Cross-Reference Tables for Nuclear Combat Model Routines	832
15	Cross-Reference Tables for Chemical Combat Model Routines	863
16	Cross-Reference Tables for Target Acquisition Model Routines and the Links for GROUND, AIRGRD, PSAIR, TC, SUPPLY, TIMET, and PSUMMY	894

ABSTRACT

The Institute for Defense Analyses (IDA) Tactical Warfare (TACWAR) model is a fully-automated combat simulation that can be used to assess the interaction of combat forces employing conventional, nuclear, and chemical weapons in a theater-wide campaign. This document presents the information necessary for programmer personnel to maintain the TACWAR model.

GLOSSARY

<u>Abbreviation</u>	<u>Meaning</u>
AAA	antiaircraft artillery
ABA	airbase attacker
ABAE	airbase attacker escort
ABAS	airbase attacker diverted to SAM-suppression
CAS	close air support
CASA	close-air-support attacker
CASD	close-air-support defender
CASE	close-air-support escort
CASS	close-air-support diverted to SAM-suppression
CEP	circular error probable
COMMZ	communication zone
FEBA	forward edge of battle area
INT	interdiction of division in reserve
QRA	quick reaction alert
SAM	surface-to-air missile
SSM	surface-to-surface missile
TOE	table of organization and equipment

APPENDIX D
EXECUTION PROCEDURES FOR THE TACWAR MODEL

1. INTRODUCTION

Successful execution of the TACWAR model requires the user to prepare appropriate job control instructions, as well as a set of model input data, if such data do not already exist on a tape or disk file. The job control instructions define the particular user data files to be accessed by the model, the TACWAR executable H* file, and optionally, the remote site to which printed output is to be directed. The model input data are a set of geographical and tactical parameters, force descriptions and allocations, and indexes which define the battle scenario in quantitative terms.

2. EXECUTING TACWAR IN THE BATCH MODE

The user may execute TACWAR by entering model data in punched card form, or he may place the data on a permanent disk file for use in a later execution. Any number of subsequent executions may be performed using the disk file as the source of model input data, and the IDAGAM data file update program, discussed below, allows the user to add, change or delete cards in the file. Sample deck structures illustrating the proper usage and sequencing of job control cards in executing TACWAR are contained in figures 139 through 144.

3. UPDATING INPUT FILES IN THE BATCH MODE

Although the IDAGAM data file update program was created to alter input files for the IDAGAM Model, it may be used for TACWAR files in the same manner. See reference 15 for a description of this program.

3.1 Data File Update Program Input Requirements

Inputs to the data file update program consist of job control instructions and update directives. Update program job control cards include instructions for accessing the update program data file and its executable H* file, and also instructions which set up an auxiliary file containing the modified data files. The update directives cause the program to modify the files by adding, deleting, or replacing specific cards. Figure 144 contains a sample deck structure illustrating the proper usage and sequencing of job control cards when the update program is executed.

```

$      SNUMB  installation - dependent
$      IDENT  installation - dependent
$      USERID installation - dependent
$      CONVER NSPIN
$      LIMITS 10,,,5K
$      DATA  IN,,COPY
.
.
FILE-10 INPUTS
.
.
$      ENDCOPY
$      PRMFL  OT,W,S,catalog - file string for file 10 input
              data
$      CONVER NSPIN
$      LIMITS 10,,,5K
$      DATA  IN,,COPY
.
.
FILE-20 INPUTS
.
.
$      ENDCOPY
$      PRMFL  OT,W,S,catalog - file string for file 20 air-
              base data
$      ENDJOB
***EOF

```

Figure 139. Sample Card Deck To Create TACWAR Data Files


```

$      SNUMB  installation - dependent
$      IDENT  installation - dependent
$      USERID installation - dependent
$      PROGRAM RLHS
$      LIMITS 30,80K,-4K,30K
$      PRMFL  H*,R,R,catalog - file string for TACWAR H* file
$      PRMFL  10,R,S,catalog - file string for file 10 input
                        data
$      PRMFL  20,R,S,catalog - file string for file 20 air-
                        base data
$      FILE   15,X1R,10L
$      SYSOUT 07
$      SYSOUT 08
$      SYSOUT 09
$      SYSOUT 04
$      ENDJOB
***EOF

```

Figure 140. Sample Card Deck To Execute TACWAR Using Data Files

```

$      SNUMB  installation - dependent
$      IDENT  installation - dependent
$      USERID installation - dependent
$      PROGRAM RLHS
$      LIMITS 30,80K,-4K,30K
$      PRMFL  H*,R,R,catalog - file string for TACWAR H* file
$      DATA  10
.
.
FILE-10 INPUTS
.
.
$      DATA  20
.
.
FILE-20 INPUTS
.
.
$      FILE   15,X1R,10L
$      SYSOUT 07
$      SYSOUT 08
$      SYSOUT 09
$      SYSOUT 04
$      ENDJOB
***EOF

```

Figure 141. Sample Card Deck To Execute TACWAR Using Punched Data Decks

```
$      SNUMB  installation - dependent
$      IDENT  installation - dependent
$      USERID installation - dependent
$      PROGRAM RLHS
$      LIMITS 30,80K,-4K,30K
$      PRMFL  H*,R,R,catalog - file string for TACWAR H* file
$      TAPE9  10,X1D,,reel number
$      TAPE9  20,X2D,,reel number
$      FILE   15,X3R,10L
$      SYSOUT 07
$      SYSOUT 08
$      SYSOUT 09
$      SYSOUT 04
$      ENDJOB
***EOF
```

Figure 142. Sample Card Deck To Execute TACWAR Using Tape Files

```

$      SNUMB  installation - dependent
$      IDENT  installation - dependent
$      USERID installation - dependent
$      PROGRAM RLHS
$      LIMITS 30,80K,-4,30K
$      PRMFL  H*,R,R,catalog - file name for TACWAR H* file
$      PRMFL  10,R,S,catalog - file name for data file 10
                        input data
$      PRMFL  20,R,S,catalog - file name for data file 20
                        airbase data
$      FILE   15,X1R,10L
$      SYSOUT 07
$      SYSOUT 08
$      SYSOUT 09
$      REMOTE 04,BS(see note 1)
$      ENDJOB
***EOF

```

Note 1: Identification code will depend on location of remote printer.

Figure 143. Sample Card Deck To Execute TACWAR Using Data Files and To Redirect Output to a Remote Printer

```

$      SNUMB  installation - dependent
$      IDENT  installation - dependent
$      USERID installation - dependent
$      PROGRAM RLHS
$      LIMITS 10,20K,,5K
$      PRMFL  H*,R,R,catalog - file string for IDAGAM update
                        program H* file
$      PRMFL  10,W,S,catalog - file string for file 10 input
                        data
$      SYSOUT 07
$      SYSOUT 08
$      DATA  I*,,COPY
.
.
FILE-10 UPDATES
.
.
$      ENDCOPY
$      PROGRAM RLHS
$      LIMITS 10,20K,,5K
$      PRMFL  H*,R,R,catalog - file string for IDAGAM update
                        program H* file
$      PRMFL  20,W,S,catalog - file string for file 20 air-
                        base data
$      SYSOUT 07
$      SYSOUT 08
$      DATA  I*,,COPY
.
.
FILE-20 UPDATES
.
.
$      ENDCOPY
$      PROGRAM RLHS
$      LIMITS 30,80K,-4K,30K
$      PRMFL  H*,R,R,catalog - file string for TACWAR H* file
$      PRMFL  10,R,S,catalog - file string for file 10 input
                        data
$      PRMFL  20,R,S,catalog - file string for file 20 air-
                        base data
$      SYSOUT 07
$      SYSOUT 08
$      SYSOUT 09
$      SYSOUT 04
$      ENDJOB
***EOF

```

Figure 144. Sample Card Deck To Update Existing Data Files and To Execute TACWAR

3.2 Alter Numbers

Each record on the data base disk file is assigned an alter number based on its position within the file. Thus, the first card image in the file has alter number 1; the fifth image, alter number 5; and the fortieth record, alter number 40. Alter numbers are not a physical part of the file, but are printed sequentially with the corresponding card images when the file contents are listed. Each time the file is updated, a new listing is produced, complete with adjusted alter numbers for every record in the file. If the updated version of the file has been saved, the listing of the updated file must be kept by the user to retain the alter numbers required for future updating. However, the user can obtain at any time a listing of the data file with the alter numbers by executing the update program with %SAVE as the only directive.

3.3 Data File Update Program Composition Rules

Inputs to the data file update program are in two forms, data cards and directive cards. The following paragraphs explain their use.

3.3.1 Data Cards. Data cards which are input to the update program follow precisely the same formats as cards used to construct TACWAR data files. Their preparation is discussed in section 3 of the Maintenance Manual.

3.3.2 Directive Cards. A directive card is distinguished by the presence of the percent character (%) as the first nonblank character on the card. Directive card input is in free-field format, and thus may appear in any column from 1 through 80. The form of any update directive is as follows:

% X m,n

The "%" designates a directive card, X represents the type of update, and m and n refer to specific card alter numbers in the data base. Input formats for the five directives are explained in detail below.

All directives except %SAVE are followed by new data card images, and all updates are entered in numerical order by alter number. The directive %DELETE is the only one which may specify an ending alter number.

The actual update modifications are performed on a temporary workfile that is a copy of the original file. The last update directive issued, %SAVE, implements all preceding updates on the original files, adjusting alter numbers to suit.

3.3.2.1 %ADD Directive. %ADD or %A causes new data cards to be added to the data file, beginning immediately after the card image whose alter number is m.

3.3.2.2 %DELETE Directive. %DELETE or %D causes the card image with alter number m to be deleted from the file. If more than one successive card image is to be deleted, n specifies the alter number of the last card image to be deleted.

3.3.2.3 %REPLACE Directive. %REPLACE or %R causes the card having alter number m to be replaced with the data card or cards following the %R card. When the %R card is not followed by any data cards, the %R directive serves the same purpose as the %D directive.

3.3.2.4 %NEW Directive. %NEW or %N indicates to the update program that the data cards following it constitute an entirely new data file.

3.3.2.5 %SAVE Directive. %SAVE or %S causes the update program to replace the old data file in permanent storage with the new, updated version, and to print out a copy of the new file with alter numbers.

4. EXECUTING TACWAR FROM THE REMOTE TERMINAL

Execution of the TACWAR model can be initiated from a remote terminal through the use of a JCL file in TSS format. An example of such a file is shown in figure 18 in subsection 4.1.3. The use of a parameter card allows for quick alteration of five options on the JCL file, each of which is listed below.

<u>Parameter Number</u>	<u>Option</u>
#1	file name of TACWAR H* file
#2	file name of TACWAR user-selected input data file

#3	file name of TACWAR airbase data file
#4	maximum processing time for execution
#5	maximum number of lines to be printed during execution

4.1 Remote Terminals

The user may execute the TSS JCL file from four types of remote terminals: the VIP 786W, the IBM 2741, the KSR 33 TTY, or the VIP 7705. Each unit requires different operating techniques, but produces the same communication between the HIS 6080 and the JCL file. The differences in operating techniques are described below.

4.1.1 VIP 786W. The VIP 786W is a keyboard/display terminal. There are two power switches on the unit. One is located on the base of the screen, and the other is located on the front of the control unit under the desk top. Both of these switches must be in the "ON" position prior to use. Every response entered by the user must be followed by pressing the ETX, LR and TX keys. These three keys transmit a line.

The appearance of the characters "^*" on the screen indicates that the information already displayed on the screen represents only a portion of the computer's transmission. The user must immediately press the FF and TX keys in order to read the remainder of the message.

4.1.2 IBM 2741. This terminal is a keyboard teletype-compatible terminal which is activated by a single power switch located on the lower right section of the keyboard. In addition, the transmission switch located on the left side of the unit must be in the "LINE" position. Prior to use of this unit, notification must be given to the CCTC scheduler that the terminal is to be switched for HIS 6080 mode of operation. This terminal contains both upper and lower case letters. Since some user responses must be entered in upper case letters, the user is advised to press the shift key for all responses. The RET key transmits input and must follow each terminal user response.

4.1.3 KSR 33 TTY. The KSR 33 is a teletype terminal which is activated by a power switch located under the right-hand side of the unit. The transmission switch which is located on the right side of the keyboard must be in the "LINE" position for operation. All user responses must be terminated by pressing the RET key.

4.1.4 VIP 7705. The VIP 7705 is a keyboard/display terminal which is activated by a power button located in the lower right corner of the display unit. The red light in this switch must be on prior to use. All user responses must be terminated by pressing the TRANSMIT-MSG/PAGE key. The appearance of the characters "^*" on the screen indicates that the information already displayed on the screen represents only a portion of the computer's transmission. The user must immediately press the CLEAR key, the space bar, and the TRANSMIT-MSG/PAGE key in order to receive the remainder of the computer message.

4.2 Log-On Procedures

To access the TACWAR TSS JCL file, the user must first log on or be accepted as a user of the HIS Time-Sharing System. Descriptions of the log-on procedures presented below are specific to the HIS 6080 Time-Sharing System operational at CCTC in the Pentagon. Variations may exist at other installations and should be verified before attempting use at such sites.

If the system responds with a "LINE DISCONNECTED" message while attempting to log on, the user should call scheduling and report the ID number of the terminal, request that the terminal be unlocked, and wait a few minutes before repeating the log-on procedure. The procedure for logging on via the above-mentioned terminals is described in the following steps. User responses are underlined.

a. Step 1.

- (1) VIP 786W. Press the FF key and enter:
\$*SLOG22L,TSS.
- (2) IBM 2741. Press the RET key. The computer will respond with "PROGRAM NAME____". The user should enter TSS.

- (3) KSR 33 TTY. Press the CTRL and A keys simultaneously. The computer will respond with "PROGRAM NAME."
The user should enter TSS.
- (4) VIP 7705. Press the CLEAR key and enter:
\$*\$LOG24,TSS.
- b. Step 2. The computer will respond with channel identification and print, "USERID\$PASSWORD". Enter your USERID and PASSWORD separated by a \$.
- c. Step 3. The computer will respond, "IDENT?" Enter badge number, 5-character program name, branch number, 10-character user's name, project code and integer 10. Example: 4981,XXXXX,315, SAYLOR....,671,10.
- d. Step 4. The computer will then respond, "CLASSIFICATION OF YOUR OUTPUT?" As appropriate, enter one of the following security classification codes: UZZ, CZZ, SZZ, TZZ.
- e. Step 5. The computer will reply, "CLASSIFICATION OF FILES YOU WILL CREATE?" As appropriate, enter one of the following security classification codes: UZZ, CZZ, SZZ, TZZ.

4.3 Altering and Executing the JCL File

Procedures for changing the TSS JCL file are described in subsection 4.1.3 of the maintenance manual.

To run the TSS JCL file, the user must log on to a terminal and follow the steps presented below:

- a. Step 1. The computer will ask, "SYSTEM?". The user should enter CARDIN, which will activate the system program that enters a terminal-initiated job into the computer for execution.
- b. Step 2. The computer will then ask, "OLD OR NEW". The user should enter OLD and the catalog file for the TSS JCL file (e.g., OLD 674IDP00/SAYLOR/TACWAR/TWTSS). This signifies that the JCL file is to be executed.

- c. Step 3. The computer will respond with "READY" and an "*". The user should enter RUN which initiates batch execution of TACWAR. A job number of the form SNUMB XXXXT will be printed. This number should be retained by the user to permit retrieval of TACWAR output printed at the central site from the control disk.
- d. Step 4. The computer will then ask, "CARD FORMAT, DISPOSITION?" The user should enter NORM to move line numbers to columns 73-80 and to obtain normal positioning of characters.
- e. Step 5. The computer will then print an "*". The user should enter BYE which will disconnect the user from the Time-Sharing System.

Figure 145 illustrates the interaction between a user and a VIP 7705 terminal in order to change the TSS JCL file and to execute the TACWAR model via the terminal. User responses are underlined.

5. UPDATING INPUT FILES FROM THE REMOTE TERMINAL

5.1 File IAD

To alter the airbase data file IAD, the user must log on to a terminal and follow the steps presented below:

- a. Step 1. The computer will ask, "SYSTEM?". The user should enter BCDASC and the catalog file string for the airbase data file (e.g., BCDASC 674IDP00/SAYLOR/TACWAR/ABD). A copy of the BCD file ABD will be converted to ASCII format for access from the terminal.
- b. Step 2. The computer will then ask, "LINE NUMBERS?". The user should enter AUTO to obtain line numbers on the ASCII copy of his file.
- c. Step 3. The computer will then respond, "TAB CHARACTERS AND SETTINGS?". The user should enter ASIS to retain the file with no tab characters.

\$*\$LOG24,TSS
USERID\$PASSWORD
674CDP02\$PASSWORD
IDENT?
4981,XXXXX,315,SAYLOR....,671,10
CLASSIFICATION OF YOUR OUTPUT?
UZZ
CLASSIFICATION OF FILES YOU WILL CREATE?
UZZ
SYSTEM?
CARDIN
OLD OR NEW
OLD 6741DP00/SAYLOR/TACWAR/TWTSS
READY
*
30\$:PARAM:TWHSTAR,TWDB,ABA,90,120K
RESAVE TWTSS
TWTSS SAVED
*
RUN
XXXXT
CARD FORMAT, DISPOSITION?
NORM
*
BYE

Figure 145. Sample Terminal Session to Alter and Execute the TSS JCL File

- d. Step 4. The computer will again ask, "SYSTEM?", to which the user should respond CARDIN. This response tells the Honeywell Time-Sharing System that the CARDIN editing features are to be used.
- e. Step 5. The computer will ask "OLD OR NEW-". The user should enter SAME to signify that the file to be updated is the ASCII file just created.
- f. Step 6. The user should update the file using the procedures described for updating the TSS JCL file.
- g. Step 7. When the user has completed his changes and resaved his file, he should enter ASCBCD *; and the catalog-file string for the original (or new) airbase data file (e.g., ASCBCD *;674IDP00/SAYLOR/TACWAR/ABD). This command instructs the computer to convert the current ASCII file to BCD and store it in the specified permfile.
- h. Step 8. The computer will respond "LABELS?" The user must respond STRIP so that the line numbers which were added for updating will be stripped from the file.
- i. Step 9. The computer will respond "TAB CHARACTERS AND SETTINGS?" The user should enter ASIS to retain the file with no tab characters.
- j. Step 10. The computer will then print an "*". This signifies that this activity has been completed. The computer then awaits further instructions from the user to start a new activity or to disconnect from the terminal through a response of BYE. If the user plans next to execute the TSS JCL file with this data file, he should enter REMOVE CLEARFILES at this point to remove the data file from his TSS Available File Table (AFT).

5.2 File MIT

The user-specified input data file MIT contains 80 columns of data, and therefore, cannot be updated using the procedures described above from a terminal which displays only 80 characters per line, e.g., VIP 7705. This updating procedure requires additional space for the line numbers.

However, the TSS TEXT EDITOR system can be used to alter, insert, or delete lines from the MIT file, once it has been converted to ASCII format with no line numbers. See reference 16 for a detailed description of the TEXT EDITOR system.

APPENDIX E
ALPHABETIC LISTING OF TACWAR VARIABLES

PRECEDING PAGE BLANK-NOT FILMED

APPENDIX E

Appendix E contains an alphabetic listing of TACWAR variables and includes their program definitions. Each variable is classified as "input" (I) or "working" (W) according to program usage. For each array variable, the array subscripts and dimensions are also appended.

The CDC 6400 FORTRAN compiler accepts a maximum of three dimensions for any array. Therefore, when a variable depends on four parameters, two of the parameters must be represented by a single index. A special notation is used in this appendix to indicate such variables. For example, FAAEFF, which depends on the indexes IAC, IR, KR, and L, is dimensioned by (IAC, IR, KR + NR * (L-1)) where NR is the maximum value of KR. The third index is written in such a manner as to give the unique formula for determining how the last two parameters are combined. In this case, the regions (KR) for side L = 1 are followed by the regions (KR) for side L = 2.

The code for some portions of the TACWAR model was obtained from other programs which used indexes for some variables that need not be dimensioned in TACWAR. Therefore, these variables are dimensioned by 1 in TACWAR and listed as arrays in this appendix (e.g., ALRSRA(1)). The user is warned that although these variables are dimensioned in TACWAR, the fact that they are dimensioned by 1 is used in the code.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
AAACT(IAAC,J,L) (2,2,2)	Alphanumeric identifier for type IAAC army-air carrier.* IAAC= 1,...,NAAC(L) and J = 1,2.	I
AACDS(IAAC,IS,L) (3,8,2)	Number of army-air carriers of type IAAC in active battle area of sector IS for side L.	W
AACS(IAAC,IS,L) (3,8,2)	Number of army-air carriers of type IAAC in sector IS for side L.	I
AACT(IAC,J,L) (7,2,2)	Alphanumeric identifier for type IAC aircraft on side L (J = 1,2).*	I
AAFCT(IAFAC,J,L) (2,2,2)	Alphanumeric identifier for type IAFAC air force reconnaissance aircraft.* IAFAC = 1,2.	I
AAFS(IAFS,J,L) (4,2,2)	Alphanumeric identifier for type IAFS air force air sensor.* IAFS = 1,...,NAFS(L).	I
AAMT(IAM,J,L) (6,2,2)	Alphanumeric identifier for type IAM air munition.* IAM = 1,..., NAM(L).	I
AAST(IAS,J,L) (4,2,2)	Alphanumeric identifier for type IAS air sensor.*	I
ABAFA(IAC) (7)	Number of ABAFA aircraft of type IAC that are alive and con- tinuing on mission.	W

*J is used to make the alphanumeric identifier machine com-
patible. Names are 8 characters in length and are input
in 2 (J) four character strings.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ABAAFD(IAC) (7)	Number of ABFAFA aircraft of type IAC that are damaged but not killed.	W
ABAAFH(IAC) (7)	Number of ABFAFA aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABAAFK(IAC) (7)	Number of ABFAFA aircraft of type IAC that are killed.	W
ABAARA(IAC) (7)	Number of ABARA aircraft of type IAC that are alive and continuing on mission.	W
ABAARD(IAC) (7)	Number of ABARA aircraft of type IAC that are damaged but not killed.	W
ABAARH(IAC) (7)	Number of ABARA aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABAARK(IAC) (7)	Number of ABARA aircraft of type IAC that are killed.	W
ABAAZA(IAC) (7)	Number of ABAZA aircraft of type IAC that are alive and continuing on mission.	W
ABAAZD(IAC) (7)	Number of ABAZA aircraft of type IAC that are damaged but not killed.	W
ABAAZH(IAC) (7)	Number of ABAZA aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABAAZK(IAC) (7)	Number of ABAZA aircraft of type IAC that are killed.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ABADFA(IAC) (7)	Number of ABAFD aircraft of type IAC that are alive and continuing on mission.	W
ABADFD(IAC) (7)	Number of ABAFD aircraft of type IAC that are damaged but not killed.	W
ABADFH(IAC) (7)	Number of ABAFD aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABADFK(IAC) (7)	Number of ABAFD aircraft of type IAC that are killed.	W
ABADRA(IAC) (7)	Number of ABARD aircraft of type IAC that are alive and continuing on mission.	W
ABADRD(IAC) (7)	Number of ABARD aircraft of type IAC that are damaged but not killed.	W
ABADRH(IAC) (7)	Number of ABARD aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABADRK(IAC) (7)	Number of ABARD aircraft of type IAC that are killed.	W
ABADZA(IAC) (7)	Number of ABAZD aircraft of type IAC that are alive and continuing on mission.	W
ABADZD(IAC) (7)	Number of ABAZD aircraft of type IAC that are damaged but not killed.	W
ABADZH(IAC) (7)	Number of ABAZD aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABADZK(IAC) (7)	Number of ABAZD aircraft of type IAC that are killed.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ABAEFA(IAC) (7)	Number of ABAFE aircraft of type IAC that are alive and continuing on mission.	W
ABAEFD(IAC) (7)	Number of ABAFE aircraft of type IAC that are damaged but not killed.	W
ABAEFH(IAC) (7)	Number of ABAFE aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABAEFK(IAC) (7)	Number of ABAFE aircraft of type IAC that are killed.	W
ABAERA(IAC) (7)	Number of ABARE aircraft of type IAC that are alive and continuing on mission.	W
ABAERD(IAC) (7)	Number of ABARE aircraft of type IAC that are damaged but not killed.	W
ABAERH(IAC) (7)	Number of ABARE aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABAERK(IAC) (7)	Number of ABARE aircraft of type IAC that are killed.	W
ABAEZA(IAC) (7)	Number of ABAZE aircraft of type IAC that are alive and continuing on mission.	W
ABAEZD(IAC) (7)	Number of ABAZE aircraft of type IAC that are damaged but not killed.	W
ABAEZH(IAC) (7)	Number of ABAZE aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABAEZK(IAC) (7)	Number of ABAZE aircraft of type IAC that are killed.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ABAF (IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying ABA missions against forward air bases in region IR.	W
ABAFD (IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying area defense missions in front of forward airbases in region IR.	W
ABAFE (IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying ABA escort missions against forward airbases in enemy region IR.	W
ABAFS (IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying SAM suppression missions against forward airbases in region IR.	W
ABARA (IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying ABA missions against rear airbases in region IR.	W
ABARD (IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying area defense missions in front of rear airbases in region IR.	W
ABARE (IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying ABA escort missions against rear airbases in region IR.	W
ABARS (IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying SAM suppression missions against rear airbases in region IR.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ABASEF(IS,L) (8,2)	Number of actual air bases that compose the notional forward airbase in sector IS for side L.	W
ABASER(IS,L) (8,2)	Number of actual airbases that compose the notional rear air base in sector IS for side L.	W
ABASEZ(L) (2)	Number of actual airbases that compose the notional COMMZ air base for side L.	W
ABASFA(IAC) (7)	Number of ABAFS aircraft of type IAC that are alive and con- tinuing on mission.	W
ABASFD(IAC) (7)	Number of ABAFS aircraft of type IAC that are damaged but not killed.	W
ABASFH(IAC) (7)	Number of ABAFS aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABASFK(IAC) (7)	Number of ABAFS aircraft of type IAC that are killed.	W
ABASRA(IAC) (7)	Number of ABARS aircraft of type IAC that are alive and con- tinuing on mission.	W
ABASRD(IAC) (7)	Number of ABARS aircraft of type IAC that are damaged but not killed.	W
ABASRH(IAC) (7)	Number of ABARS aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABASRK(IAC) (7)	Number of ABARS aircraft of type IAC that are killed.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ABASZA(IAC) (7)	Number of ABAZS aircraft of type IAC that are alive and continuing on mission.	W
ABASZD(IAC) (7)	Number of ABAZS aircraft of type IAC that are damaged but not killed.	W
ABASZH(IAC) (7)	Number of ABAZS aircraft of type IAC that are aborting mission and returning home undamaged.	W
ABASZK(IAC) (7)	Number of ABAZS aircraft of type IAC that are killed.	W
ABATPS(IAC,L) (7,2)	Number of ground targets per sortie that a side L type IAC aircraft can engage on ABA missions.	I
ABAZA(IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying ABA missions against COMMZ airbases in region IR.	W
ABAZD(IAC,L) (7,2)	Number of aircraft (sorties) of type IAC on side L flying area defense missions in front of COMMZ airbases.	W
ABAZE(IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying ABA escort missions against COMMZ airbases in region IR.	W
ABAZS(IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying SAM suppression missions against COMMZ airbases in region IR.	W
ACCZ(IAC,L) (7,2)	Number of side L type IAC aircraft (non-QRA) on COMMZ airbases.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ACCZDC(IAC,L) (7,2)	Number of side L type IAC aircraft based on COMMZ airbases that were damaged in air combat during the cycle.	W
ACCZKC(IAC,L) (7,2)	Number of side L type IAC aircraft based on COMMZ airbases that were killed in air combat during the cycle.	W
ACFS(IAC,IS,L) (7,8,2)	Number of side L type IAC aircraft (non-QRA) on forward airbases in sector IS.	I
ACFSDC(IAC,IR,L) (7,3,2)	Number of side L type IAC aircraft based on forward airbases in region IR that were damaged in air combat during the cycle.	W
ACFSKC(IAC,IR,L) (7,3,2)	Number of side L type IAC aircraft based on forward airbases in region IR that were killed in air combat during the cycle.	W
ACHAT(KA) (9)	Alphanumeric identifier to type KA chemical agent.	I
ACHDM(KDM) (3)	Alphanumeric identifier to type KDM chemical dissemination mode.	I
ACRS(IAC,IS,L) (7,8,2)	Number of side L type IAC aircraft (non-QRA) on rear airbases in sector IS.	I
ACRSDC(IAC,IR,L) (7,3,2)	Number of side L type IAC aircraft based on rear airbases in region IR that were damaged in air combat during the cycle.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ACRSKC(IAC,IR,L) (7,3,2)	Number of side L type IAC aircraft based on rear airbases in region IR that were killed in air combat during the cycle.	W
ACSABA(IAC,IS,L) (7,8,2)	Number of successful CAS sorties by type IAC aircraft in sector IS for side L.	W
ADT(IT,J) (10,2)	Alphanumeric identifier for type IT division.* IT = 1,...,NT(1) + NT(2).	I
AEDGE(IAC,L) (7,2)	Average number of additional engagements (in addition to 1.0) that a side L type IAC defender can potentially make.	I
AEEGE(IAC,L) (7,2)	Average number of additional engagements (in addition to 1.0) that a side L type IAC escort can potentially make.	I
AF(I,IAF) (2,201)	Latitude and longitude of air base IAF.	I
AFABS	Additional fraction of aircraft sent on belt suppression missions.	W
AFACA	Additional fraction of aircraft sent on CASA missions.	W
AFACE	Additional fraction of aircraft sent on CASE missions.	W
AFDIM (I,J) (22,4)** (7,4)+	Description or dimensions (J) for airfield item I in data statements.	W

*J is used to make the alphanumeric identifier machine compatible. Names are 8 characters in length and are input in 2 (J) four character strings.

**These dimensions are used in the nuclear model (in labeled Common AFSTF2).

+These dimensions are used in the chemical model (local to CHEMDAM).

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
AGST(IGS,J,L) (6,2,2)	Alphanumeric identifier for type IGS ground sensor.* IGS = 1,..., NGS(L).	I
AIWC(IWC) (3)	Alphanumeric identifier for type IWC chemical weapon category.	I
AIWS(IWC,IWS,L) (3,5,2)	Alphanumeric identifier for type IWS chemical weapon system with IWC weapon category.	I
AKT(KT,J) (3,2)	Alphanumeric identifier for type KT terrain.* KT = 1,...,3 and J = 1,2.	I
ALRS(1,J,L) (1,2,2)	Alphanumeric identifier for long range SAMs on side : (J = 1,2)	I
ALRSR(1,IR,L) (1,3,2)	Number of side L long range SAMs providing area defenses of region IR rear airbases.	I
ALRSRA(1)	Number of area long range SAMs defending rear airbases that are alive and operating.	W
ALRSRD(1)	Number of area long range SAMs defending rear airbases that are damaged but not killed.	W
ALRSRK(1)	Number of area long range SAMs defending rear airbases that are killed.	W
ALRSRS(1)	Number of area long range SAMs defending rear airbases that are suppressed.	W

*J is used to make the alphanumeric identifier machine com-
patible. Names are 8 characters in length and are input
in 2 (J) four character strings.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ALRSZ(1,L) (1,2)	Number of side L long range SAMs providing area defenses in front of COMMZ airbases.	I
ALRSZA(1)	Number of area long range SAMs defending COMMZ airbases that are alive and operating.	W
ALRSZD(1)	Number of area long range SAMs defending COMMZ airbases that are damaged but not killed.	W
ALRSZK(1)	Number of area long range SAMs defending COMMZ airbases that are killed.	W
ALRSZS(1)	Number of area long range SAMs defending COMMZ airbases that are suppressed.	W
ALTAAS(IAS,IAAC,L) (4,3,2)	Altitude (in meters) of side L type IAS air sensor in type IAAC army-air carrier.	I
ALTAFS(IAFS,L) (4,2)	Altitude (in meters) of side L type IAFS air sensor in reconnaissance aircraft.	I
ALTFAP(KA) (9)	Altitude (in meters) at which agent type KA is sampled for assessment purposes.	I
ALTGS(IGS,L) (5,2)	Altitude (in meters) of side L type IGS ground sensor.	I
ALTSAC(IAC,L) (7,2)	Average length of a typical sortie for type IAC aircraft (in hours).	I
AMFAAB(L) (2)	Maximum number of aircraft allowed on an (actual) forward airbase for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
AMLFD (IAC,IS,L) (7,8,2)	Air munition load factor based on distance flown for type IAC aircraft in sector IS for side L.	W
AMLFR (IAC,L) (7,2)	Air munition load factor to account for the additional distance that a rear based side L type IAC aircraft flies when on CAS mission.	I
AMLFZ (IAC,L) (7,2)	Air munition load factor to account for the additional distance that a COMMZ based side L type IAC aircraft flies when on CAS missions.	I
AMNL (IAC,IAM,L) (7,6,2)	Number of air munitions of type IAM in a notional load of a side L type IAC aircraft based on a forward air base flying CAS missions.	I
AMOAAC (IAAC,L) (3,2)	Minimum operational altitude (in meters) of side L type IAAC army-air carrier.	I
AMORAC (L) (2)	Minimum operational altitude (in meters) of side L reconnaissance aircraft.	I
AMRAAB (L) (2)	Maximum number of aircraft allowed on an (actual) rear air base for side L.	I
AMRS (1,J,L) (1,2,2)	Alphanumeric identifier for medium range SAMs on side L (J = 1,2).*	I

*J is used to make the alphanumeric identifier machine compatible. Names are 8 characters in length and are input in 2 (J) four character strings.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
AMTLRS(1,L) (1,2)	Actual number of missiles in theater for long range SAMs on side L.	I
AMTMRS(1,L) (1,2)	Actual number of missiles in theater for medium range SAMs on side L.	I
AMTSRS(ISS,L) (2,2)	Number of missiles /AAA rounds in theater for type ISS short range air defenses on side L.	I
AMXRPL(L) (2)	Maximum number of side L aircraft that can be repaired in one cycle in the repair pool.	I
ANIWS(IWC,IWS,L)	Alphanumeric identifier for type IWS nuclear weapon system in IWC weapon category.	I
ANSLRS(L) (2)	Average number of possible shots per fire control center for side L long range SAMs. (equivalences ASLSBS(ILS,L), ASLSFB(ILS,L), and ASLSBC(ILS,L))	I
ANSMRS(L) (2)	Average number of possible shots per fire control center for side L medium range SAMs.	I
APT(ITP,J) (6,2)	Alphanumeric identifier for type ITP posture. ITP = 1,...,6 and J = 1,2.*	I

*J is used to make the alphanumeric identifier machine compatible. Names are eight characters in length and are input in two (J) 4-character strings.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ARSS(L) (2)	Average shipping rate (in km/day) for side L supplies moving through the supplies network.	I
ASIDE(L) (2)	Alphanumeric identifier for side L. Side 1 is BLUE. Side 2 is RED.	W
ASRS(ISS,J,L) (2,2,2)	Alphanumeric identifier for type ISS short range surface-to-air weapons of side L.*	I
ASUBM(IWC,IWS,L) (3,4,2)	Area (m ²) covered by a single chemical submunition in a side L IWS weapon system of weapon category IWC	I
ASUT(ISU,J,L) (7,2,2)	Alphanumeric identifier for type ISU subunit.* ISU = 1,..., NSU(L) and J = 1,2.	I
ATR(ITR,J) (2,2)	Alphanumeric identifier for tactical role ITR.* ITR = 1,2 and J = 2. ITR = 1 is ATTACKER. ITR = 2 is DEFENDER.	W
AWT(IW,J,L) (10,2,2)	Alphanumeric identifier for type IW weapon.* IW = 1,...,NW(L) and J = 1,2.	I
BMRS(1,IR,L) (1,3,2)	Number of side L medium range SAMs in the belt in region IR.	I
BMRSA(1)	Number of medium range belt SAMs that are alive and operating.	W

*J is used to make the alphanumeric identifier machine compatible. Names are eight characters in length and are input in two (J) 4-character strings.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
BMRSD(1)	Number of medium range belt SAMs that are damaged but not killed.	W
BMRSK(1)	Number of medium range belt SAMs that are killed.	W
BMRSS(1)	Number of medium range belt SAMs that are suppressed.	W
BNDIS(INTS,IS) (18,8)	The interval boundary between INTS and INTS + 1 in sector IS.	I
BSSUP(IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying belt SAM suppression missions into enemy region IR.	W
BSSUPA(IAC) (7)	Number of BSSUP aircraft of type IAC that are alive and continuing on mission.	W
BSSUPD(IAC) (7)	Number of BSSUP aircraft of type IAC that are damaged but not killed.	W
BSSUPH(IAC) (7)	Number of BSSUP aircraft of type IAC that are aborting mission and returning home undamaged.	W
BSSUPK(IAC) (7)	Number of BSSUP aircraft of type IAC that are killed.	W
CAAFSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on ABA attack missions (to all forward airbases): sorties attempted (II=1) or aircraft killed (II=2).	W
CAARSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on ABA attack missions (to all rear airbases): sorties attempted (II=1) or aircraft killed (II=2).	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CAAZSK (IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on ABA attack missions (to all COMMZ air bases): sorties attempted (II=1) or aircraft killed (II=2)	W
CACQF (J,L) (5,2)	Cumulative number of side L aircraft on all forward airbases that are converted to type J QRA aircraft.	W
CACQR (J,L) (5,2)	Cumulative number of side L aircraft on all rear airbases that are converted to type J QRA aircraft.	W
CACQZ (J,L) (5,2)	Cumulative number of side L aircraft on all COMMZ airbases that are converted to type J QRA aircraft.	W
CADAM (IAC,L) (7,2)	Cumulative number of side L type IAC aircraft that have been damaged.	W
CADFSK (IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on area defense missions protecting all forward airbases: sorties attempted (II=1) or aircraft killed (II=2).	W
CADRSK (IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on area defense missions protecting all rear airbases: sorties attempted (II=1) or aircraft killed (II=2).	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CADZSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on area defense missions protecting all COMMZ airbases: sorties attempted (II=1) or aircraft killed (II=2).	W
CAEFSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on ABA escort missions to all forward airbases: sorties attempted (II=1) or aircraft killed (II=2).	W
CAERSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on ABA escort missions to all rear airbases: sorties attempted (II=1) or aircraft killed (II=2).	W
CAEZSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on ABA escort missions to all COMMZ airbases: sorties attempted (II=1) or aircraft killed (II=2).	W
CAKGS(IAC,KW,L) (7,10,2)	Cumulative type IAC aircraft kills of type KW weapon on the ground in sector IS.	W
CAKNSF(IAC,L) (7,2)	Cumulative number of side L type IAC undamaged aircraft on all forward airbases that are killed on the ground not in shelters.	W
CAKNSR(IAC,L) (7,2)	Cumulative number of side L type IAC undamaged aircraft on all rear airbases that are killed on the ground not in shelters.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CAKNSZ(IAC,L) (7,2)	Cumulative number of side L type IAC undamaged aircraft on all COMMZ airbases that are killed on the ground not in shelters.	W
CAKSHF(IAC,L) (7,2)	Cumulative number of side L type IAC undamaged aircraft on all forward airbases that are killed on the ground in shelters.	W
CAKSHR(IAC,L) (7,2)	Cumulative number of side L type IAC undamaged aircraft on all rear airbases that are killed on the ground in shelters.	W
CAKSHZ(IAC,L) (7,2)	Cumulative number of side L type IAC undamaged aircraft on all COMMZ airbases that are killed on the ground in shelters.	W
CALSRK(ILS,L) (1,2)	Cumulative number of side L long range SAMs protecting rear airbases that are killed.	W
CALSZK(ILS,L) (1,2)	Cumulative number of side L long range SAMs protecting COMMZ airbases that are killed.	W
CAREPD(IAC,L) (7,2)	Cumulative number of side L type IAC aircraft that have been repaired.	W
CASA(IAC,KR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying CAS attack missions into enemy region KR.	W
CASAA(IAC) (7)	Number of CAS aircraft of type IAC that are alive and con- tinuing on mission.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CASAD(IAC) (7)	Number of CAS aircraft of type IAC that are damaged but not killed.	W
CASAH(IAC) (7)	Number of CAS aircraft of type IAC that are aborting mission and returning home undamaged.	W
CASAK(IAC) (7)	Number of CAS aircraft of type IAC that are killed.	W
CASCIV	Civilian casualties from chemical attacks.	W
CASD(IAC,IR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying battlefield defense missions into region IR.	W
CASDA(IAC) (7)	Number of CASD aircraft of type IAC that are alive and continuing on mission.	W
CASDD(IAC) (7)	Number of battlefield defense (CASD) aircraft of type IAC that are damaged but not killed.	W
CASDH(IAC) (7)	Number of CASD aircraft of type IAC that are aborting mission and returning home undamaged.	W
CASDK(IAC) (7)	Number of CASD aircraft of type IAC that are killed.	W
CASE(IAC,KR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying CAS escort missions into enemy region KR.	W
CASEA(IAC) (7)	Number of CASE aircraft of type IAC that are alive and continuing on mission.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CASED(IAC) (7)	Number of CASE aircraft of type IAC that are damaged but not killed.	W
CASEH(IAC) (7)	Number of CASE aircraft of type IAC that are aborting mission and returning home undamaged.	W
CASEK(IAC) (7)	Number of CASE aircraft of type IAC that are killed.	W
CASFSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on SAM suppression missions to all forward airbases: sorties attempted (II=1) or aircraft killed (II=2).	W
CASRSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on SAM suppression missions to all rear airbases: sorties attempted (II=1) or aircraft killed (II=2).	W
CASS(IAC,KR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying SAM suppression missions against point SAMs into enemy region KR.	W
CASSA(IAC) (7)	Number of CASS aircraft of type IAC that are alive and continuing on mission.	W
CASSD(IAC) (7)	Number of CASS aircraft of type IAC that are damaged but not killed.	W
CASSH(IAC) (7)	Number of CASS aircraft of type IAC that are aborting mission and returning home undamaged.	W
CASSK(IAC) (7)	Number of CASS aircraft of type IAC that are killed.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CASZSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on SAM sup- pression missions to all COMMZ airbases: sorties attempted (II=1) or aircraft killed (II=2).	W
CBMSK(1,L) (1,2)	Cumulative number of side L belt SAMs that are killed.	W
CBSFSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on belt SAM suppression missions: sorties attempted (II=1) or aircraft killed (II=2).	W
CCACSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on CAS attack missions to all combat sectors: sorties attempted (II=1) or air- craft killed (II=2).	W
CCDCSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on battlefield defense missions in all combat sectors: sorties attempted (II=1) or aircraft killed (II=2).	W
CCECSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on CAS escort missions to all combat sectors: sorties attempted (II=1) or air- craft killed (II=2).	W
CCSCSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on point SAM suppression missions to all combat sectors: sorties attempted (II=1) or aircraft killed (II=2).	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CEITWZ (ITM,IWZ) * (40,11)	Weather ceiling (in meters) in weather zone IWZ at time period ITM (in 12-hour cycles).	I
CEPCHD (IWS,L) (7,2)	CEP of type IWS division chemical system, side L.	I
CEPCHS (IWS,L) (4,2)	CEP of type IWS sector chemical system, side L.	I
CEPCHT (IWS,L) (4,2)	CEP of type IWS theater chemical system, side L.	I
CEPD (IWS,L) (4,2)	CEP of type IWS division nuclear system, side L.	I
CEPS (IWS,L) (5,2)	CEP of type IWS sector nuclear system.	I
CEPT (IWS,L) (5,2)	CEP of type IWS theater nuclear system.	I
CFEBA (IS) (8)	Movement of FEBA in sector IS since last cycle.	W
CGKGS (IW,KW,L) (10,10,2)	Cumulative ground kills of type weapon on the ground in sector.	W
CHDMDP (IWS,L) (4,2)	Minimum depth beyond the FEBA that division chemical system IWS will be fired by side L.	I
CHSMDP (IWS,L) (4,2)	Minimum depth beyond the FEBA that sector chemical system IWS will be fired by side L.	I

*Values in DATA statements.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CHTMDP(IWS,L) (4,2)	Minimum depth beyond the FEBA that theater chemical system IWS will be fired by side L.	I
CIAFSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on INTD attack missions to all INTD targets: sorties attempted (II=1) or aircraft killed (II=2).	W
CIEFSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on INTD escort missions to all INTD targets: sorties attempted (II=1) or aircraft killed (II=2).	W
CISFSK(IAC,II,L) (7,2,2)	Cumulative number of side L type IAC aircraft on area defense missions at all INTD targets: sorties attempted (II=1) or aircraft killed (II=2).	W
CIVCCH(IS,L) (8,2)	Civilian casualties from chemical weapons, in sector IS, side L.	W
CIVCNU(IS,L) (8,2)	Civilian casualties from nuclear weapons in sector IS, side L.	W
CIVFCH(IS,L) (8,2)	Civilian fatalities from chemical weapons in sector IS, side L.	W
CIVFNU(IS,L) (8,2)	Civilian fatalities from nuclear weapons in sector IS, side L.	W
CLPABA(L) (2)	Fraction of side L airbase operating capability that is destroyed by each attacking enemy aircraft.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CLRSDM(1,L) (1,2)	Cumulative number of side L type ILS long range SAMs that have been damaged.	W
CLSREP(1,L) (1,2)	Cumulative number of side L long range SAMs that have been repaired.	W
CMRSDM(1,L) (1,2)	Cumulative number of side L medium range SAMs that have been damaged.	W
CMSREP(1,L) (1,2)	Cumulative number of side L medium range SAMs that have been repaired.	W
CONEQ(ID,IW) (140,10)	Current number of type IW weap- ons in division ID that are contaminated.	W
CPLS(IS,L) (8,2)	Cumulative number of side L people lost in sector IS.	W
CPSSCK(ISS,L) (2,2)	Cumulative number of side L type ISS short range SAMs protecting combat sectors that are killed.	W
CPSSFK(ISS,L) (2,2)	Cumulative number of side L type ISS short range SAMs protecting forward air bases that are killed.	W
CPSSIK(ISS,L) (2,2)	Cumulative number of side L type ISS short range SAMs protecting interdiction targets that are killed.	W
CPSSRK(ISS,L) (2,2)	Cumulative number of side L type ISS short range SAMs protecting rear air bases that are killed.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CPSSZK(ISS,L) (2,2)	Cumulative number of side L type ISS short range SAMs protecting COMMZ air bases that are killed.	W
CQKNSF(J,L) (5,2)	Cumulative number of side L type J QRA aircraft on all forward air bases that are killed on the ground not in shelters.	W
CQKNSR(J,L) (5,2)	Cumulative number of side L type J QRA aircraft on all rear air bases that are killed on the ground not in shelters.	W
CQKNSZ(J,L) (5,2)	Cumulative number of side L type J QRA aircraft on all COMMZ air bases that are killed on the ground not in shelters.	W
CQKSHF(J,L) (5,2)	Cumulative number of side L type J QRA aircraft on all forward air bases that are killed on the ground in shelters.	W
CQKSHR(J,L) (5,2)	Cumulative number of side L type J QRA aircraft on all rear air bases that are killed on the ground in shelters.	W
CQKSHZ(J,L) (5,2)	Cumulative number of side L type J QRA aircraft on all COMMZ air bases that are killed on the ground in shelters.	W
CRAC(IAC,L) (7,2)	Cross (lateral) range (from far left to far right) of a type IAC aircraft on side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CRLRS(1,L) (1,2)	Cross (lateral) range (from far left to far right) of a long range SAM on side L.	I
CRMRS(1,L) (1,2)	Cross (lateral) range (from far left to far right) of medium range SAM on side L.	I
CRSAC(IAC,L) (7,2)	Consumption rate of supplies (in tons per day) of type IAC aircraft for side L.	I
CSABAF(IAC,L) (7,2)	Cumulative number of successful side L type IAC ABA sorties to enemy forward airbases.	W
CSABAR(IAC,L) (7,2)	Cumulative number of successful side L type IAC ABA sorties to enemy rear airbases.	W
CSABAZ(IAC,L) (7,2)	Cumulative number of successful side L type IAC ABA sorties to enemy COMMZ airbases.	W
CSCASA(IAC,L) (7,2)	Cumulative number of successful side L type IAC CAS sorties.	W
CSDAW(L) (2)	Cumulative side L supplies destroyed by air weapons.	W
CSDFS(L) (2)	Cumulative supplies destroyed in forward sector by friendly side L due to FEBA advance of enemy side K.	W
CSDGW(L) (2)	Cumulative supplies destroyed by ground weapons.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
CSDP(IT,IP) (10,4)	Consumption rate of supplies (in tons/day) by type IT divi- sion in posture IP.	I
	$IP = \begin{cases} 1, & \text{means delay} \\ 2, & \text{means prepared position} \\ 3, & \text{means hasty position} \\ 4, & \text{means holding.} \end{cases}$	
CSDR(IT) (10)	Consumption rate of supplies (in tons/day) by type IT division in reserve posture.	I
CSINDA(IAC,L) (7,2)	Cumulative number of successful side L type IAC INTD sorties.	W
CSRSDM(ISS,L) (2,2)	Cumulative number of side L type ISS short range SAMs that have been damaged.	W
CSSREP(ISS,L) (2,2)	Cumulative number of side L type ISS short range SAMs that have been repaired.	W
CTSCD(L) (2)	Cumulative tons of supplies consumed by divisions of side L.	W
CWLS(IW) (10)	Cumulative number of weapons of type IW lost in sector.	W
DACFT(IAAC,L) (3,2)	Distance (in km) from side L type IAAC army-air carrier to target division front.	I
DAMPL(IAC,L) (7,2)	Number of side L type IAC air- craft that are damaged and are in the maintenance pool.	I
DCONEQ(IW,L) (10,2)	Effort required (in man-hours) for side L to decontaminate a type IW weapon.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
DCONTD (IT) (10)	Decontamination capability (in man-hours) of a type IT division at TOE strength level.	I
DDWDCD (L) (2)	Distance (in km) that a side L defender withdraws when changing combat deployment.	I
DEGEFF (ISU,L) (7,2)	Degradation in combat efficiency of personnel in type ISU sub-units who are in full chemical protective gear for one chemical cycle, side L.	I
DEGSRC (L) (2)	Degraded sortie rate capability of COMMZ airbase for side L.	W
DEGSRF (IS,L) (8,2)	Degraded sortie rate capability of forward airbase in sector IS for side L.	W
DEGSRR (IS,L) (8,2)	Degraded sortie rate capability of rear airbase in sector IS for side L.	W
DEPAWC (KA) (9)	Deposition of type KA chemical agent (mg/m ²) on weapon to assure weapon contamination.	I
DEPDR (L) (2)	Depth (km) of side L division in reserve.	I
DFASN (L) (2)	Distance (in km) a supply node is from the FEBA before that supply node is abandoned by side L.	I
DGSFT (IP, ITR,L) (4,2,2)	Distance (in km) from side L ground sensors to target-unit front when the sensing unit is in type IP posture and in type ITR tactical role (i.e., combat deployment).	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
DICT50 (KA, IPP) (9,4)	Median incapacitating dosage (ICT50) for the inhalation component (mg-min/m ³) of type KA agent and IPP protective posture.	I
DID50 (KA, IPP) (9,4)	Median incapacitating dosage (ID50) for the percutaneous component (mg) of type KA agent and type IPP protective posture where <div style="margin-left: 150px;"> IPP = { <ul style="list-style-type: none"> 1, environmental uniform only 2, environmental uniform, mask available 3, protective clothing on, MHG available 4, protective clothing on, MHG on. </div>	I
DIFCLA (KA) (9)	Diffusivity (cm ² /sec) of liquid component of agent type KA.	I
DINTEG	Average detection potential used in target acquisition equation for a particular type of mission.	W
DISACW (J, L) (2,2)	Round to round dispersion accuracy (meters) of a side L chemical weapon system J when employed in a line source <div style="margin-left: 150px;"> J = { <ul style="list-style-type: none"> 1, artillery (linear sheaf) 2, air ("stick of bombs"). </div>	I
DLCT50 (KA, IPP) (9,4)	Median lethal dosage (LDt50) for the inhalation component (mg-min/m ³) of type KA agent, and type IPP protective posture.	I
DLD50 (KA, IPP) (9,5)	Median lethal dosage (LD50) for percutaneous component (mg) of type KA agent and type IPP protective posture.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
DLSMPL(1,L) (1,2)	Number of side L long range SAMs that are damaged and are in the maintenance pool.	I
DMSMPL(1,L) (1,2)	Number of side L medium range SAMs that are damaged and are in the maintenance pool.	I
DP2(JE,L) (4,2)	If IND2(4,L) = 1, this is the threshold value of enemy advance since the last cycle which will initiate an escalation to state JE for side L (must be negative for Red).	I
DP7(L) (2)	The theater attacker's "stalled movement rate" which in conjunc- tion with a lack of total advance by the sectors of main attack (DPTH7) will initiate a nuclear escalation by side L.	I
DPC2(LE,L) (4,2)	Threshold depth for side L (associated with IEVNT4 of INDC2) since the last cycle which will initiate a transi- tion to chemical employment level LE.	I
DPC7(L) (2)	The theater attacker's "stalled movement rate" which in conjunc- tion with a lack of advance by the sectors of main attack (DPTHC7) will initiate a use of chemical weapons by side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
DPCHD (IWS,IPOS,L) (4,2,2)	Average distance from the FEBA for deployment of division chemical weapon system IWS in position IPOS for side L. (IPOS=1,...,NPCHD)	I
DPCHS (IWS,IPOS,L) (4,2,2)	Average distance from the FEBA for deployment of sector chemical weapon system IWS in position IPOS for side L. (IPOS=1,...,NPCHS)	I
DPCHT (IWS,IPOS,L) (4,2,2)	Average distance from the FEBA for deployment of theater chemical weapon system IWS in position IPOS for side L. (IPOS=1,...,NPCHT)	I
DPTH2 (L) (2)	Threshold depth for side L associated with nuclear IEVNT = 2.	I
DPTH3 (L) (2)	Threshold depth for side L associated with nuclear IEVNT = 3.	I
DPTH7 (L) (2)	For IND2(7,L) = 1, this is the theater attacker's advance objective (for sectors of main attack) which, if not met, and in conjunction with a number of combat days and a low rate of advance (DP7), will initiate a nuclear escalation (to state JE) for side L.	I
DPTH2 (L) (2)	Threshold depth for side L (associated with IEVNT = 2 of INDC2) for movement beyond FEBA which would initiate the use of chemicals.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
DPTHC3(L) (2)	Threshold depth for side L (associated with IEVNT = 3 of INDC2) for cumulative move- ment beyond FEBA which would initiate the use of chemicals.	I
DPTHC7(L) (2)	For INDC2(7,L) = 1, this is the theater attacker's advance objective for sectors of main attack which, if not met, and in conjunction with a number of combat days and a low rate of advance (DPC7), will initiate a use of chemical weapons by side L.	I
DQRAF(IS,L) (8,2)	Desired number of QRA aircraft (of any type) on forward air bases in sector IS for side L.	I
DQRAR(IS,L) (8,2)	Desired number of QRA aircraft (of any type) on rear air bases in sector IS for side L.	I
DQRAZ(L) (2)	Desired number of QRA aircraft (of any type) on COMMZ air bases for side L.	I
DRAFT(L) (2)	Distance from side L recon- naissance aircraft to target division front.	I
DSA(L) (2)	Number of days of supply on- hand for side L airbases at the supply node supplying the air base.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
DSCZBA(L) (2)	Number of days of supply on-hand that a designated side L COMMZ supply node (in sector) has for its users in the active battle area, (where "designated COMMZ supply node" is the first node in COMMZ, by sector).	I
DSCZFS(L) (2)	Number of days of supply on-hand that a designated side L COMMZ supply node has for its users in sector forward.	I
DSCZRS(L) (2)	Number of days of supply on-hand that a designated side L COMMZ supply node has for its users in sector rear.	I
DSD(I,L) (2,2)	Number of days of supply on-hand for side L divisions. (I = 2 indicates divisions located in an active or most-forward inactive) battle area of a sector that is a sector of main attack. I = 1 indicates all other divisions.)	I
DSFNBA(L) (2)	Number of days of supply on-hand that a designated side L sector-forward supply node has for its users in the active battle area, (where "designated sector-forward supply node" is the first node in sector forward).	I
DSRNBA(L) (2)	Number of days of supply on-hand that a designated side L sector-rear supply node has for its users in the active battle area, (where "designated sector-rear supply node" is the first node in sector rear).	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
DSRNFS(L) (2)	Number of days of supply on-hand that a designated side L sector-rear supply node has for its users in sector forward.	I
DSSMPL(ISS,L) (2,2)	Number of side L type ISS short range SAMs that are damaged and are in the maintenance pool.	I
DSSNCZ(L) (2)	Number of days of supply on-hand for side L supply nodes in the COMMZ.	I
DSSNFS(L) (2)	Number of days of supply on-hand for side L supply nodes in sector forward.	I
DSSNRS(L) (2)	Number of days of supply on-hand for side L supply nodes in sector rear.	I
DVDPTH(IDS) (30)	Depth of division IDS.	W
DVMNDP(IWS,JE,L) (4,4,2)	Minimum depth (in km) beyond the FEBA that division nuclear weapon system IWS may be fired when side L is in escalation state JE.	I
DVWDTH(IDS) (30)	Width of division IDS.	W
ECALFA(KAS,KWS) (3,3)	The expansion coefficient for the horizontal dispersion parameter for chemical agents under atmospheric condition KAS and type KWS wind speed (km/hr).	I
$KAS = \begin{cases} 1, & \text{inversion} \\ 2, & \text{neutral} \\ 3, & \text{lapse} \end{cases}$		

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ECALFA (KAS, KWS) (3, 3)	$KWS = \begin{cases} 1, & 2 \text{ mph} \\ 2, & 8 \text{ mph} \\ 3, & 16 \text{ mph.} \end{cases}$	I
ECBETA (KAS, KWS) (3, 3)	The expansion coefficient for the vertical dispersion parameter for chemical agents under atmospheric condition KAS, and wind speed KWS.	I
EFAGT (IAC, L) (7, 2)	Estimated fraction of initial (cycle) inventory of undamaged type IAC aircraft on side L that will be on the ground as targets for enemy ABA missions.	I
EFCE	Epsilon value used in computing eigenvalue (when the anti-potential potential method of weapon value is used).	I
EFFDA (ID) (140)	Effectiveness of division ID on attack.	W
EFFDD (ID) (140)	Effectiveness of division ID on defense.	W
EFFSHL (L) (2)	Estimated fraction of shelters on side L that will be full when the ABA attack occurs, if there are more aircraft than shelters.	I
EFWTD (LIWS, K, IA) (8, 3, 4)	Effective fill weight (lbs) of type IWS division system munition with type IA agent for dissemination mode K for side L. (LIWS = NIWS*(L-1) + IWS)	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
EFWTS (LIWS,K,IA) (8,3,4)	Effective fill weight (lbs) of type IWS sector weapon system munition with type IA agent for dissemination mode K for side L. (LIWS=NIWS*(L-1) + IWS).	I
EFWTT (LIWS,K,IA) (8,3,4)	Effective fill weight (lbs) of type IWS theater weapon system munition with type IA agent for dissemination mode K for side L. (LIWS=NIWS*(L-1)+ IWS).	I
ERDWLE (L) (2)	Effectiveness at which a reinforcing division will replace a withdrawn division of lower effectiveness. (This is the minimum combat effectiveness of a side L division before it replaces a division withdrawn from combat because that division's effectiveness was below EWDRHE(L). This division must be PICVDR(L) percent greater in combat value than the unit it is replacing.)	I
ESDASI (IAC,L) (7,2)	Effectiveness (in tons per sortie) by which supplies are destroyed by a side L, type IAC aircraft on supply interdiction.	I
EWDRHE (L) (2)	Effectiveness at which divisions are withdrawn when replacement divisions exist with higher effectiveness. (This is the maximum combat effectiveness of a side L division before it is withdrawn from combat if there is a unit of effectiveness ERDWLE(L) to replace it in the first inactive battle area.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FAAABA	Fraction of additional aircraft sent on ABA missions from forward airbases to compensate for those sent on CAS from rear.	W
FAAABE	Fraction of additional aircraft sent on ABAE missions from forward airbases to compensate for those sent on CAS from rear.	W
FAAAFF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward air bases in region IR to do ABA missions against forward airbases in region KR.	W
FAAAFR(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward air bases in region IR to do ABA missions against rear airbases in region KR.	W
FAAAFZ(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from forward air bases in region IR to do ABA missions against COMMZ airbases.	W
FAAARF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear air bases in region IR to do ABA missions against forward airbases in region KR.	W
FAAARR(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear air bases in region IR to do ABA missions against rear airbases in region KR.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FAAARZ(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do ABA missions against COMMZ airbases.	W
FAAAZF(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do ABA missions against forward airbases in region KR.	W
FAAAZR(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do ABA missions against rear airbases in region KR.	W
FAAAZZ(IAC,L) (7,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do ABA missions against COMMZ airbases.	W
FAABAA(IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly airbase attack (ABA) missions.	I
FAABAD(IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly area defense missions.	I
FAABAE(IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly escort missions with ABA aircraft.	I
FAABAS(IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly SAM suppression missions with ABA aircraft.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FAACTD(IT) (10)	Factor of a notional division's TOE number of army-air carriers in a type IT division.	I
FAADFF(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to fly area defense missions in front of forward airbases.	W
FAADRF(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to fly area defense missions in front of forward airbases.	W
FAADRR(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to fly area defense missions in front of rear airbases.	W
FAAEFF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to do ABAE missions against forward airbases in region KR.	W
FAAEFR(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to do ABAE missions against rear airbases in region KR.	W
FAAEFZ(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to do ABAE missions against COMMZ airbases.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FAAERF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do ABAE missions against forward airbases in region KR.	W
FAAERR(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do ABAE missions against rear airbases in region KR.	W
FAAERZ(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do ABAE missions against COMMZ airbases.	W
FAAEZF(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do ABAE missions against forward airbases in region KR.	W
FAAEZR(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do ABAE missions against rear airbases in region KR.	W
FAAEZZ(IAC,L) (7,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do ABAE missions against COMMZ airbases.	W
FAASFF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to fly SAM suppression missions against forward airbases in region KR.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FAASFR(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to fly SAM suppression missions against rear airbases in region KR.	W
FAASFZ(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to fly SAM suppression missions against COMMZ airbases.	W
FAASRF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to fly SAM suppression missions against forward airbases in region KR.	W
FAASRR(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to fly SAM suppression missions against rear airbases in region KR.	W
FAASRZ(IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to fly SAM suppression missions against COMMZ airbases.	W
FAASZF(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to fly SAM suppression missions against forward airbases in region KR.	W
FAASZR(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to fly SAM suppression missions against rear airbases in region KR.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FAASZZ (IAC,L) (7,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to fly SAM suppression missions against COMMZ airbases.	W
FABAFS (IS,L) (8,2)	Fraction of side L aircraft on ABA missions into each enemy forward region that are sent to sector IS within that region, i.e., $\sum_{IS \in IR} \text{FABAFS}(IS,L) = 1.0$ for every region IR.	I
FABARS (IS,L) (8,2)	Fraction of side L aircraft on ABA missions into each enemy rear region that are sent to sector IS within that region, i.e., $\sum \text{FABAFS}(IS,L) = 1.0$ for $IS \in IR$ every region IR.	I
FABASS (IR,KR,L) (3,3,2)	Fraction of side L aircraft on ABA, ABAE and SAM suppression (both area and belt) that fly from region IR to enemy region KR.	I
FABDRF (IAC,L) (7,2)	Fraction of side L type IAC aircraft on area defense missions that are based on rear airbases but fly to defend in front of forward airbases.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FABDZF(IAC,L) (7,2)	Fraction of side L type IAC aircraft on area defense missions that are based in the COMMZ but fly to defend in front of forward airbases.	I
FABDZR(IAC,L) (7,2)	Fraction of side L type IAC aircraft on area defense missions that are based in the COMMZ but fly to defend in front of rear airbases.	I
FABSFF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to do BSSUP missions into region KR.	W
FABSRF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do BSSUP missions into region KR.	W
FABSUP(IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly belt SAM suppression missions.	I
FABSZF(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do BSSUP missions into region KR.	W
FACAFC(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to do CAS missions into region KR.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FACARC (IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do CAS missions into region KR.	W
FACASA (IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly CAS attack missions.	I
FACASD (IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly battlefield defense missions.	I
FACASE (IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly CAS escort missions (CASE).	I
FACASS (IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly SAM suppression missions with CAS aircraft (CASS).	I
FACAZC (IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do CAS missions into enemy region KR.	W
FACDZC (IAC,IR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do battlefield defense in region IR.	W
FACEFC (IAC,IR, KR+NR*(L-L)) (7,3,6)	Fraction of side L type IAC aircraft assigned from for- ward airbases in region IR to do CASE missions into region KR.	W
FACERC (IAC,IR, KR+NR*(L-L)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do CASE missions into region KR.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FACEZC(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do CASE missions into region KR.	W
FACIDE(L) (2)	Factor to increase the degradation in combat efficiency (DEGEFF), if chemical garment is worn for a complete conventional cycle (12 hours).	I
FACPDS(I,L) (3,2)	A factor for scaling the probability of detection for a sensor position near the target location for side L sensors in category I, where $I = \begin{cases} 1, & \text{ground based sensors} \\ 2, & \text{army air sensors} \\ 3, & \text{air force sensors.} \end{cases}$	I
FACSFC(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to do CASS missions into region KR.	W
FACSRC(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do CASS missions into region KR.	W
FACSZC(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do CASS missions into region KR.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FADTMC (L) (2)	Fraction of aircraft capable of delivering chemical weapons dedicated to chemical missions for side L.	I
FADTMN (L) (2)	Fraction of attack aircraft dedicated to nuclear missions, side L (limited by nuclear capable aircraft available).	I
FAGSCN (IAC, L) (7, 2)	Fraction of side L type IAC aircraft that are on the ground and are assigned to shelters but are caught not sheltered.	I
FAGTOT (L) (2)	Minimum fraction of the desired level of chemical agent that side L is willing to fire at enemy subunit.	I
FAIAFF (IAC, IR, KR+NR* (L-1)) (7, 3, 6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to do interdiction (INTDA) missions into region KR.	W
FAIARF (IAC, IR, KR+NR* (L-1)) (7, 3, 6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do INTDA missions into region KR.	W
FAIAZF (IAC, KR, L) (7, 3, 2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do INTDA missions into region KR.	W
FAIEFF (IAC, IR, KR+NR* (L-1)) (7, 3, 6)	Fraction of side L type IAC aircraft assigned from forward airbases in region IR to do INTDE missions into region KR.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FAIERF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do INTDE missions into region KR.	W
FAIEZF(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do INTDE missions into region KR.	W
FAINDA(IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly interdiction attack missions.	I
FAINDE(IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly escort missions with interdiction aircraft (INTDE).	I
FAINDS(IAC,L) (7,2)	Fraction of aircraft of type IAC on side L assigned to fly SAM suppression missions with interdiction aircraft (INTDS).	I
FAISFF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do INTDS missions into region KR.	W
FAISRF(IAC,IR, KR+NR*(L-1)) (7,3,6)	Fraction of side L type IAC aircraft assigned from rear airbases in region IR to do INTDS missions into region KR.	W
FAISZF(IAC,KR,L) (7,3,2)	Fraction of side L type IAC aircraft assigned from COMMZ airbases to do INTDS missions into region KR.	W
FAKRH(L) (2)	Factor for computing the number of aircraft on side L killed on their way home.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FAPKAD(L) (2)	Factor for modifying the side L defender versus escort PK to get a PK for attacker versus defender.	I
FAPKDA(L) (2)	Factor for modifying the side L defender versus escort PK to get a PK for defender versus attacker.	I
FAPKED(L) (2)	Factor for modifying the side L defender versus escort PK to get a PK for escort versus defender.	I
FASFRC	Fraction (α) of attacker's CAS sorties that are considered when computing the force ratio for casualties to the attacker.	I
FATCIV	Civilian fatalities from chemical attacks.	W
FAUSHL(L) (2)	Fraction of side L aircraft that can use another aircraft's shelter while that other aircraft is out flying its mission.	I
FCABFD	Factor for computing casualties to the attacker in a breakthrough posture as a function of the delay posture casualty rate.	I
FCAIA(IAC,L) (7,2)	Fraction of a cycle that a side L type IAC aircraft is in the air.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FCASRS (IS,L) (8,2)	Fraction of side L aircraft on CAS missions into each enemy region that are sent to sector IS within that region, i.e., $\sum_{IS \in IR} FCASRS(IS,L) = 1.0$ for every region IR.	I
FCASSS (IR,KR,L) (3,3,2)	Fraction of side L aircraft on CAS, CASE, and CAS SAM suppression that fly from region IR to enemy region KR.	I
FCDBFD	Factor for computing casualties to the defender in a breakthrough posture as a function of the delay posture casualty rate.	I
FCHP (L) (2)	Fraction of casualties to side L divisions when side L is in a holding posture.	I
FCPPC (IPCC,IL) (4,2)	Fraction of civilian population in location IL and protection category IPCC, where $IL = \begin{cases} 1, & \text{active battle area} \\ 2, & \text{inactive battle area} \end{cases}$ and where IPCC = 1,2,3, 4 references IPC = 5,6,7,8 $IPC = \begin{cases} 1, & \text{in APCs} \\ 2, & \text{in tanks} \\ 3, & \text{in foxholes} \\ 4, & \text{in shelters (earth covered)} \\ 5, & \text{in the open} \\ 6, & \text{in single story buildings} \\ 7, & \text{in multistory buildings} \\ 8, & \text{in basements.} \end{cases}$	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FCVLS (L) (2)	Factor for scaling percent casualties to side L to get (weapon) value lost for side L.	I
FDAGPS (IWS, IPDS, L) (4, 2, 2)	Fraction of division chemical weapon system IWS assigned to position IPDS, side L.	I
FDCRAD (L)	Fraction of side L division weapon system chemical rounds in the theater that are allocated to the division pool.	I
FDCRAS (L) (2)	Fraction of side L division weapon system chemical rounds in the theater that are allocated to the sector pool.	I
FDDPTH (L) (2)	Factor to determine depth of type division for side L, (factor of width, WTDCTR).	I
FDEAC (IAC)	Fraction of defenders of type IAC that are able to engage attackers in combat areas.	W
FDEAF (IAC) (7)	Fraction of defenders of type IAC that are able to engage attackers in forward areas.	W
FDEAR (IAC) (7)	Fraction of defenders of type IAC that are able to engage attackers in rear areas.	W
FDEAZ (IAC) (7)	Fraction of defenders of type IAC that are able to engage attackers in the COMMZ.	W
FDSFRC	Fraction (B) of defender's CAS sorties that are considered when computing the force ratio for casualties to the defender.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FDSPOS(IWS,IPOSD,L) (4,2,2)	Fraction of division nuclear weapon system IWS assigned to position IPOSD for side L.	I
FDSWTC(IWS,L) (4,2)	Fraction of a particular division weapon type that represents a type IWS division chemical weapon system (see IDSWTC), side L.	I
FDSWTN(IWS,L) (4,2)	Fraction of a particular division weapon type that represents a type IWS division nuclear weapon system (see IDSWTN).	I
FDWALD(L) (2)	Fraction of division nuclear warheads in theater allocated to division pool for side L.	I
FDWALS(L) (2)	Fraction of division nuclear warheads in theater allocated to sector pool for side L.	I
FDWLAC(IAAC,L) (3,2)	Flight path location for side L IAAC army-air carriers as a fraction of division width.	I
FDWLRA(L) (2)	Flight path location for side L reconnaissance aircraft as a fraction of division width.	I
FEAFBA(L) (2)	Maximum flank exposure (in kms) that a side L attacker will accept while advancing, based on the combat forces in the active battle area only.	I
FEBA(IS) (8)	Forward edge of battle area in sector IS.	W
FEBATZ(IS) (8)	FEBA at time zero in sector IS.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FEDW(L) (2)	Maximum flank exposure (in km) that a side L defender will accept before withdrawing (based on forces in active battle area).	I
FEISF(L) (2)	Flank exposure increment (in km) (in addition to FEAFBA(L) that a side L attacker will accept with a security force ratio of SFRFE(2,L).	I
FGSTD(IT) (10)	Factor of a notional division's number of ground sensors in a type IT division.	I
FINDSS(IR,KR,L) (3,3,2)	Fraction of side L aircraft on INTDA, INTDE, and INTDS missions based in region IR that fly to enemy region KR.	I
FINTRS(IS,L) (8,2)	Fraction of side L aircraft on INT missions into each enemy region that are sent to sector IS within that region, i.e., $\sum_{IS \in IR} FCASRS(IS,L) = 1.0$ for every region IR.	I
FKLAA(1,L) (1,2)	Fraction of kills that are lethal when an enemy aircraft shoots at a friendly aircraft on side L.	I
FKLASM(L) (2)	Fraction of kills which are lethal when an enemy aircraft shoots at a surface-to-air weapon on side L. (FKLASS, FKLAMS, FKLALS)	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FKLSMA(L) (2)	Fraction of kills which are lethal when a surface-to-air weapon on side L shoots at enemy aircraft. (FKLSSA, FKLSMA, FKLLSA)	I
FMBP(L) (2)	Factor for percent increase in movement of the attacker in a breakthrough posture over a delay posture. (FMBP > 1)	I
FMDPT(IT,KP,KT) (10,3,3)	Factor for mobility of type IT division attacking in posture KP and in terrain KT. $KP = \begin{cases} 1, & \text{means delay} \\ 2, & \text{means prepared position} \\ 3, & \text{means hasty position} \end{cases}$	I
FMNC(L) (2)	Factor of minimum contraction of division width for side L.	I
FMNRWS(IMA,JE,L)	Minimum fraction of nuclear reserves for basic weapon type IMA when side L is in escalation state JE. (IMA = 1 missile, IMA = 2 artillery).	I
FMXE(L) (2)	Factor of maximum expansion of division width for side L.	I
FOAEVP(KDM,KA)	Fraction of type KA chemical agent from dissemination mode KDM that evaporates per meter of release height.	I
FOCRPC(L)	Fraction of the air base operating capability (previously destroyed) that is recovered per cycle for side L.	I
FODSUD(ISU,L) (7,2)	Factor for computing offset distance to be used when targeting type ISU subunits on defense based on the values used when on attack.	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FPABCP (IPP,L) (4,2)	Fraction of personnel at air bases in type IPP chemical protective posture for side L.	I
FPAFPC (IPCA,L) (4,2)	Fraction of people (both military and civilian) at an air-base that are in protection category IPCA, where IPCA = 1,2,3,4 references IPC = 5,6,7,8 (see FCPPC).	I
FPDCAS (IRT) (5)	Average number of personnel casualties inflicted per CAS sortie (region average) IRT = 1,...,NR(1) + NR(2).	W
FPDRST (I,ISU,L) (3,7,2)	A factor for scaling the negative exponential for how the probability of detection falls off by range for a side L sensor in category I when detecting enemy subunit ISU. $I = \begin{cases} 1, & \text{ground based sensors} \\ 2, & \text{army air sensors} \\ 3, & \text{air force sensors.} \end{cases}$	I
FPKANS (IAC,L) (7,2)	Factor for changing probability of kill of side L type IAC aircraft against sheltered aircraft to get probability of kill against nonsheltered aircraft for side L based on distance flown (i.e., FPKANS multiplied by PKASD(IAC,II,L).	I
FPKC	Fraction of personnel in divisions that are bonus casualties.	W
FPMSCP (IPP,L) (4,2)	Fraction of personnel at SSM sites in type IPP chemical protective posture for side L.	I

AD-A091 493

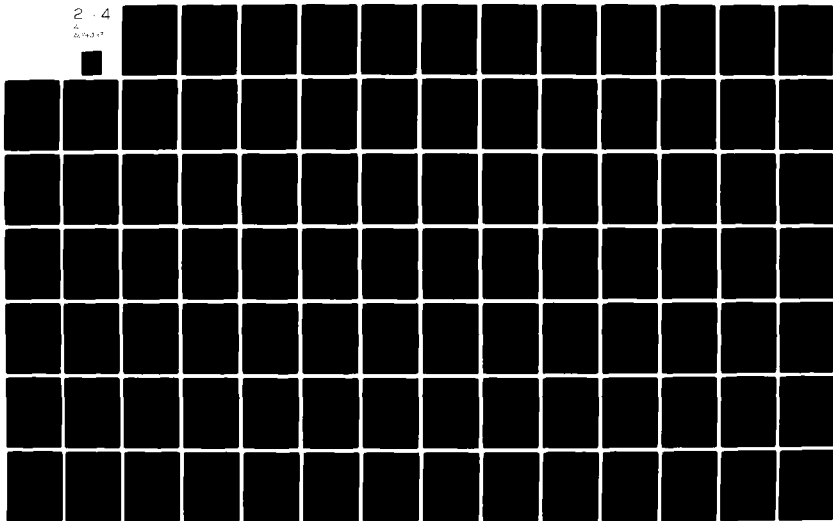
COMMAND AND CONTROL TECHNICAL CENTER WASHINGTON DC F/G 9/2
INSTITUTE FOR DEFENSE ANALYSES TACTICAL WARFARE (TACWAR) MODEL.--ETC(U)
SEP 77 M C FLYTHE, P FINNEGAN, J REIERSON
CCTC-CSM-MM-237-77

UNCLASSIFIED

NL

2 4

20 14 3 17





NATIONAL BUREAU OF STANDARDS-1963-A

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FPRC (ID,IRS) (140,4)	Fraction of people from division ID in radiation category IRS.	W
FPSSPC (IPCS,L) (5,2)	Fraction of people at a SSM site that are in protection category IPCS for side L, where IPCS = 1,2,3,4,5 references IPC = 1,2,3,4,5 of FCPPC.	I
FPSWDU (ISU,L) (7,2)	Fraction of TOE personnel strength at which a side L type ISU subunit is withdrawn from action.	I
FQRACZ (J,L) (5,2)	Fraction of total desired QRA aircraft that should be of type J on COMMZ airbases for side L (J = 1,...,NQRAT).	I
FQRAFS (J,L) (5,2)	Fraction of total desired QRA aircraft that should be of type J on forward airbases for side L (J = 1,...,NQRAT).	I
FQRARS (J,L) (5,2)	Fraction of total desired QRA aircraft that should be of type J on rear airbases for side L (J = 1,...,NQRAT).	I
FRAACI (IAAC,L) (3,2)	Fraction of type IAAC army-air carriers that are inoperable on a given day for side L.	I
FRACIO (L) (2)	Fraction of air force reconnaissance aircraft inoperable for a given day for side L.	I
FRAD (IS) (8)	Force ratio in sector IS, attacker to defender.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FRATA (KP,L) (3,2)	Force ratio to attack in posture KP if side L is theater attacker.	I
FRATD (KP,L) (3,2)	Force ratio to attack in posture KP if side L is theater defender.	I
FRCHGC (ISU,IPP,L) (7,4,2)	Fraction of type ISU subunit in type IPP chemical protective posture for side L. (For definitions of IPP see DID50.)	I
FRCMZC (ISUB,LE,L) (3,4,2)	Maximum fraction of ISUB COMMZ targets side L will target in employment level LE.	I
FRCMZN (ISUB,JE,L) (3,4,2)	Maximum fraction of ISUB COMMZ targets side L will target in escalation state JE.	I
FRDSUZ (IZ,ITR,L) (4,2,2)	Factor to get side L subunit radius by zone location (IZ) and tactical role (ITR); factor of RDSUR (for ITR see WTDCTR).	I
FRLPMA (IM,L) (3,2)	Fraction of side L air force reconnaissance aircraft lost prior to mission accomplishment (for IM see PRAFSM). IM = 1,...,3.	I
FRMAX (ISU,JE,L) (7,4,2)	Maximum fraction of type ISU subunits that side L may target in escalation state JE.	I
FRMAXC (ISU,LE,L) (7,4,2)	Maximum fraction of ISU subunit that side L will target in employment level LE.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FRMSRC (ISU, LE, L) (7, 4, 2)	Maximum fraction of type ISU subunits in rear area divisions that side L will target in employment level LE.	I
FRMSRN (ISU, JE, L) (7, 4, 2)	Maximum fraction of type ISU subunits in rear area divisions that side L will target in escalation state JE.	I
FRSPCR (ISU, IPCM, L) (7, 5, 2)	Fraction of subunit ISU in protection category IPCM while side L division is in reserve, where IPCM = 1, 2, 3, 4, 5 references IPC = 1, 2, 3, 4, 5 in variable FCPPC.	I
FRSUPC (ISU, IPCM, ITR+2 (K-1) (7, 5, 4)	Fraction of subunit ISU in protection category IPCM while side K divisions on the line are in tactical role ITR.	I
FSAGPS (IWS, IPSS, L) (4, 2, 2)	Fraction of sector chemical system IWS assigned to position IPSS for side L.	I
FSCRAS (L) (2)	Fraction of side L sector weapon system chemical rounds in the theater that are allocated to the sector pool.	I
FSKSAK (IAC, L) (7, 2)	Fraction of shelters that are killed when a side L type IAC aircraft is able to attack a shelter in such a way that the aircraft inside it would be killed.	I
FSPAB (IAB) (201)	Fraction of surviving military personnel at actual air base IAB.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FSRAES (L) (2)	Factor for converting side L ABA escort sortie rate to SAM suppression sortie rate.	I
FSRCES (L) (2)	Factor for converting side L CAS escort sortie rate to SAM suppression sortie rate.	I
FSRIES (L) (2)	Factor for converting side L INT escort sortie rate to SAM suppression sortie rate.	I
FSSPOS (IWS,IPOSS,L) (5,2,2)	Fraction of sector nuclear weapon system IWS assigned to position IPOSS for side L.	I
FSSSMS (L) (2)	Fraction of side L SAM sup- pressors that use standoff munitions to avoid being shot at by enemy short range sur- face-to-air weapons.	I
FSSWTC (IWS,L) (4,2)	Fraction of a particular sec- tor weapon type that repre- sents a type IWS sector chemi- cal weapon system for side L.	I
FSSWTN (IWS,L) (5,2)	Fraction of a particular sec- tor weapon type that repre- sents a type IWS sector nuclear weapon system for side L.	I
FSUAZ (ISU,IZ,IT) (7,4,10)	Fraction of type ISU subunits allocated to zone IZ by type IT division.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
FSUPCT (ISN) (95)	Fraction of supplies at node ISN that are contaminated with chemical agent.	W
FSWAS (L) (2)	Fraction of sector warheads in theater allocated to sector pool for side L.	I
FTAGPS (IWS, IPTS, L) (4, 2, 2)	Fraction of theater chemical system IWS assigned to position IPTS for side L.	I
FTSPOS (IWS, IPOST, L) (5, 2, 2)	Fraction of theater nuclear system IWS assigned to position IPOST for side L.	I
FTSWTC (IWS, L) (4, 2)	Fraction of a particular weapon type that represents a type IWS theater chemical weapon system for side L.	I
FTSWTN (IWS, L) (5, 2)	Fraction of a particular weapon type that represents a type IWS theater nuclear weapon system for side L.	I
FWDCAS (IW, IRT) (10, 5)	Average number of type IW weapons destroyed per CAS sortie (region average) $IRT = 1, \dots, NR(1) + NR(2)$.	W
FWDMAX (L) (2)	Factor to allow user to modify the number of aircraft that will be sent to side L forward airbases from rear airbases.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
GDBA(IBA) (112)	Cumulative ground distance to leading edge of battle area IBA. (May be in a Data state-ment.)	I
GLPAFS(IAFS,L) (4,2)	The number of glimpses per hour for a type IAFS air force sensor for side L.	I
GLPAS(IAS,L) (4,2)	The number of glimpses per hour for a type IAS army air sensor for side L.	I
GLPGS(IGS,L) (5,2)	The number of glimpses per hour for a type IGS ground sensor for side L.	I
HOBD(LIWS,K,IA) (8,3,4)	Height of burst (m) of type IWS division chemical weapon system munition with type IA agent for dissemination mode K for side L. (LIWS=NIWS(L-1) + IWS); K = 1,...,3.	I
HOBS(LIWS,K,IA) (8,3,4)	Height of burst (m) of type IWS sector chemical weapon system munition with type IA agent for dissemination mode K for side L. K = 1,...,3; IWS = 1,...,4.	I
HOBT(LIWS,K,IA) (8,3,4)	Height of burst (m) of type IWS theater chemical weapon system munition with type IA agent for dissemination mode K for side L. K = 1,...,3; IWS = 1,...,4.	I
IAASV(IAS,L) (4,2)	Index to army-air sensors of type IAS that are affected by visibility for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IABAAG(L) (2)	Index for computing ABA air-to-ground attrition (attackers on side L), where, for point attack of sheltered and unsheltered aircraft,	I
	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">IABAAG =</div> <div style="border-left: 1px solid black; padding-left: 10px;"> <ol style="list-style-type: none"> 1, attack shelters only if no open aircraft are detected or no shelters on parking areas 2, attack sheltered or unsheltered aircraft optimally 3, attack a parking area if either a sheltered or an unsheltered aircraft is detected on that area. </div> </div>	
IABAS(IS) (8)	Index to active-battle area in sector IS.	I
IABTA(JE,L) (4,2)	Index to side L airbase targeting assumption for escalation state JE. Airbase targeting priority is established by ranking airbases highest to lowest according to value calculated in WTNAST(L)	I
	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">IABTA =</div> <div style="border-left: 1px solid black; padding-left: 10px;"> <ol style="list-style-type: none"> 1, means one weapon is targeted on the runway of each air base targeted. 2, means one weapon is targeted on the most densely occupied aircraft parking area of each air base targeted. 3, means one weapon is targeted on each aircraft parking area of the airbases targeted. </div> </div>	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IACTWS	Index to actual wind speed used in chemical assessment.	I
IAF	Index to airfield.	W
IAFBA(IAF) (201)	Index to battle area location of air base IAF.	I
IAFSV(IAFS,L) (4,2)	Index to air force sensor of type IAFS affected by visibility for side L	I
	IAFSV = $\begin{cases} 1, & \text{affected} \\ 2, & \text{unaffected.} \end{cases}$	
IALBT(ISU,IZ, JE+4(L-1)) (7,4,8)	Index to allowable battlefield targets for nuclear weapons. Equals 1 if type ISU division subunit in zone IZ is an allow- able target for side L in nuclear escalation state JE, 0 otherwise.	I
IALBTC(ISU,IZ, LE+NEML*(L-1)) (7,4,8)	Index to allowable battlefield targets for chemical weapons. Equals 1 if type ISU division subunit in zone IZ is an allow- able target for side L in chemical employment level LE; 0 otherwise.	I
IALCT(ISUB,JE,L) (4,4,2)	Index to allowable COMMZ tar- gets for nuclear weapons. Equals 1 if COMMZ type ISUB target is allowable for side L in nuclear escalation state JE, 0 otherwise.	I
<ul style="list-style-type: none"> ● ISUB = 1 is airbase target <ul style="list-style-type: none"> for ISUB = 1, ITYP = 1 is sector-forward airbases for ISUB = 1, ITYP = 2 is sector-rear airbases. 		

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IALCT(ISUB,JE,L)	<ul style="list-style-type: none"> ● ISUB = 2 is supply node target <ul style="list-style-type: none"> for ISUB = 2, ITYP = 1 is supply node feeding the active battle area for ISUB = 2, ITYP = 2 is all other supply nodes in region. ● ISUB = 3 is surface-to-surface missile target <ul style="list-style-type: none"> for ISUB = 3, ITYP = 1 is medium range missiles ITYP = 2 is long range missiles. ● ISUB = 4 is for division targets in the region only <ul style="list-style-type: none"> for ISUB = 4, ITYP = 1 is divisions in forward region ITYP = 2 is divisions in rear region (currently zero). 	
IALCTC(ISUB,LE,L) (4,4,2)	Index to allowable COMMZ targets for chemical weapons. Equals 1 if COMMZ type ISUB target is allowable for side L in chemical employment level LE: 0 otherwise. (For ISUB see IALCT.)	I
IALRT(ITYP,ISUB, JE+4(L-1)) (2,4,8)	Index to allowable region targets for nuclear weapons. Equals 1 if type ISUB target in area ITYP is allowable for side L in escalation state JE, 0 otherwise. (For ISUB see IALCT.)	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IALRTC (ITYP,ISUB, LE+NEML(L-1)) (2,4,8)	Index to allowable region targets for chemical weapons. Equals 1 if type ISUB target in area ITYP is allowable for side L in employment level LE: 0 otherwise. (For ISUB see IALCT.)	I
IBA	Index to battle area.	W
IBALD (ID) (140)	Index to battle area location of division ID.	I
ICABTA (LE,L) (4,2)	Index to airbase targeting assumption for chemical employment level LE for side L (see IABTA).	I
ICADTA (L) (2)	Index to COMMZ assignment option* for theater attacker when arriving unit is from side L.	I
ICADTD (L) (2)	Index to COMMZ assignment option* for theater defender when arriving unit is from side L.	I
ICASN (L) (2)	Cycle indicating the arrival of supplies to side L supply nodes.	W
ICDLB (ITC,L) (3,2)	If chemical weapons received by side L in the active battle area will initiate a move to a higher employment level of chemical weapons against target category ITC, then ICDLB = 1, 0 otherwise.	I

*Assignment options are discussed in section 2.2.14.2.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ICDLC (ISUB, ITC, L) (4, 3, 2)	If chemical weapons received by side L against COMMZ targets of type ISUB will initiate a move to a higher employment level of chemical weapons against target category ITC, ICDLC = 1, 0 otherwise. (For ISUB see IALCT.)	I
ICDLR (ISUB, ITC, L) (4, 3, 2)	If chemical weapons received by side L against region targets of type ISUB will initiate a move to a higher employment level of chemical weapons against target category ITC, ICDLR = 1, 0 otherwise. (For ISUB see IALCT.)	I
ICDLT (ITC, L) (3, 2)	Equals 1 if side L wishes to move to a higher employment level of chemical weapons against target category ITC. (A special case of INDC2 (4, L).)	I
ICHFAT	Index to option for reporting number of chemical fatalities within number of persons incapacitated or just number incapacitated by chemical weapons ICHFAT = $\begin{cases} 1, & \text{report fatalities plus incapacitated} \\ 2, & \text{report incapacitated only.} \end{cases}$	I
ICHST (IS, L) (8, 2)	Cycle at which side L initiates a preemptive chemical strike in sector IS.	I
ICHTAR (I, L) (40, 2)	Index of chemical targets of priority I for side L.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ICHTD (IS,L) (8,2)	Cycle at which side L terminates a preemptive chemical strike in sector IS.	I
ICMD	Index to method of chemical weapon attack on target ICMD = $\begin{cases} 1, & \text{rounds aimed upwind of target edge} \\ 2, & \text{rounds aimed at target center.} \end{cases}$	I
ICMES (JE,L) (4,2)	Index to combat mode when side L is in nuclear escalation state JE ICMES = $\begin{cases} 1, & \text{nonnuclear} \\ 2, & \text{nuclear prepared} \\ 3, & \text{nuclear.} \end{cases}$	I
ICMPLX	Index to method of chemical assessment ICMPLX = $\begin{cases} 1, & \text{use longer running, complex code} \\ 2, & \text{use faster running, simplified code.} \end{cases}$	I
ICMS (IS,L) (8,2)	Index to time zero and current combat mode in sector IS for side L. ICMS = $\begin{cases} 1, & \text{nonnuclear} \\ 2, & \text{nuclear prepared} \\ 3, & \text{nuclear} \end{cases}$	I
ICMST (IS,L) (8,2)	Index to combat mode in sector IS (temporary)--a flag variable for use in the ground model. If ICMST = 0, then there is no downgrading of combat mode. If ICMST is 1 or 2, then that is the combat mode to which the side wishes to downgrade on the next cycle.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ICOV	Index to chemical coverage calculations. 0 = uniform coverage, 1 = nonuniform coverage (increases running time).	I
ICPDHD (L) (2)	Index to change a side L prepared defense to a side K (K=3-L) hasty position when side L is attacking into what was originally his own prepared defense.	I
	$\text{ICPDHD} = \begin{cases} 0, & \text{a prepared defense for side L remains a prepared defense for side K} \\ 1, & \text{a prepared defense for side L becomes a hasty position for side K.} \end{cases}$	
ICPRB (ISU,IZ,L) (7,4,2)	Index to priority list of preferred chemical targets by side L. The three variables ICPRB, ICPRR, and ICPRCZ are used to form a <u>single</u> priority list of preferred targets when it is assumed that all targets types are allowable. No two target types within the three variables may have the same priority. Priorities are listed highest to lowest as 1,2,3,...,N. The variable	I
	ICPRB (ISU,IZ,L) Gives the priority of side L battlefield targets of type ISU sub-units in zone IZ.	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ICPRB (ISU, IZ, L)	ICPRR (ITYP, ISUB, L) (2, 4, 2) Priority of side L region targets of type ISUB in area ITYP. (see vari- able IALCT)	
	ICPRCZ (ISUB, L) (4, 2) Priority of side L COMMZ targets of type ISUB. (see IALCT)	
ICPRCZ	See ICPRB above	I
ICPRR	See ICPRB above	I
ICSM	Index to cycle for supply model.	W
ICSMA (L) (2)	Index to compute sector of main attack for side L	I
	ICSMA = $\begin{cases} 1, \text{ model determined} \\ \quad (\text{sector of maximum} \\ \quad \text{FEBA advance/region}) \\ 2, \text{ user input.} \end{cases}$	
ICYCLE	Index to current combat cycle.	W
IDEL2 (ITC, L) (3, 2)	If IND2(4, L) = 1, then this equals 1 if side L wishes to escalate to nuclear state JE against target category ITC, 0 otherwise.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IDELB3(ITC,L) (3,2)	If nuclear weapons received in the active battle area will initiate an escalation against target category ITC by side L, then IDELB3 = 1, 0 otherwise.	I
IDELC3(ISUB,ITC,L) (4,3,2)	If nuclear weapons received against COMZ targets of sub-type ISUB will initiate an escalation against target category ITC by side L, then IDELC3 = 1, 0 otherwise.	I
IDELR3(ISUB,ITC,L) (4,3,2)	If nuclear weapons received against region targets of sub-type ISUB will initiate an escalation against target category ITC by side L, then IDELR3 = 1, 0 otherwise. (see IALCT)	I
IDELTA(L) (2)	Index to choice of second best nuclear weapon to fire. Equals +1 if side L wishes the second best choice of weapon to be a weapon which is incrementally larger in yield. Equals -1 if side L wishes the second choice of a weapon to be one that is incrementally smaller in yield.	I
IDLABA(IDS,IS) (30,8)	Index to division location in active battle areas in position IDS of sector IS. Side 1 divisions enter sector IS from the right (when facing the FEBA) and as units move in or are withdrawn, those divisions remaining in the sector move to the left. IDLABA(1,IS) is the position to the extreme left and has in it the division that has been in sector IS the longest. (Side 2 divisions enter IS from the left and move to the right.)	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IDLBC3(ITC,L) (3,2)	If nuclear weapons received by side L in the active battle area will initiate a move to a higher employment level of chemical weapons against target category ITC, then IDLBC3 = 1, 0 otherwise.	I
IDLCC3(ISUB,ITC,L) (4,3,2)	If nuclear weapons received by side L against COMMZ targets of type ISUB will initiate a move to a higher employment level of chemical weapons against target category ITC, IDLCC3 = 1, 0 otherwise. (see IALCT)	I
IDLIBA(IDV,IS,L) (15,8,2)	Index to division ID when division is in IDV location in the first inactive battle area of sector IS for side L.	W
IDLRC3(ISUB,ITC,L) (4,3,2)	If nuclear weapons received by side L against region targets of type ISUB will initiate a move to a higher employment level of chemical weapons against target category ITC, IDLRC3 = 1, 0 otherwise. (see IALCT)	I
IDLYLD(J,I,L) (3,5,2)	If warhead of the Ith nuclear weapon system of category J for side L has multiple yield options, then IDLYLD = 1, 0 otherwise where $J = \begin{cases} 1, & \text{division system} \\ 2, & \text{sector system} \\ 3, & \text{theater system.} \end{cases}$	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IDSBDT (JE,ISBT,L) (4,5,2)	Indicator for the ISBTth battle- field surface burst target in escalation state JE for side L (by integer code representation where number entered is the sub- unit type being targeted). ISBT = 1,...,NSBDT.	I
IDSBTS (JE,ISBT,L) (4,5,2)	Indicator for the ISBTth region surface burst target in esca- lation state JE for side L (by integer code representation where the number entered is given by ITYP + 2 (ISUB-1)). ISBT = 1,...,NSBTS.	I
IDSBT (JE,ISBT,L) (4,5,2)	Indicator for the ISBTth COMMZ surface burst target in esca- lation state JE for side L (by integer code representation where number entered is given by ITYP + 2 (ISUB-1)). ISBT = 1,...,NSBT.	I
IDSVE (IDS) (30)	Division identification for the Ith fire mission side L.	W
IDSWTC (IWS,L) (4,2)	Index of type IWS division chemical weapon system to a particular weapon type for side L. Reference weapon is the IW weapon in combat divisions. IWS = 1,...,4.	I
IDSWTN (IWS,L) (4,2)	Index of type IWS division nuclear weapon system to a particular weapon type for side L. Reference weapon is the IW weapon in combat divisions. IWS = 1,...,NDVNW.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IDWTSU(IWSU,ISU,L) (4,7,2)	Index to division weapon type for type IWSU weapon in subunit ISU for side L. (First weapon listed is primary weapon for subunit. If no primary weapon exists, such as with HQ or support units, use zero in first location. Subunits will then be formed with people only.) IWSU = 1,...,NTWSU.	J
IEML(IS,ITC,L) (8,3,2)	Current employment level for chemical weapons for side L in sector IS against target category ITC.	W
IEMLC1(ITC,L) (3,2)	Chemical employment level to be moved to against target category ITC if a preemptive strike is to be initiated.	I
IEMLC2(IEVNT,ITC,L) (7,3,2)	The chemical employment level side L will move to against target category ITC if the corresponding INDC2(IEVNT,L) is 1 and the IEVNT has occurred.	I
IEQGS(IGS,L) (5,2)	Index for target acquisition equations for side L type IGS ground sensor.	I
IESC(IS,ITC,L) (8,3,2)	Index to escalation level in sector IS against target category ITC for side L.	W
IFULL(IS,L) (8,2)	Index which indicates that the first inactive battle area is full.	W
IGO	Index to next day for time t inputs.	W
IGSV(IGS,L) (5,2)	Index to ground sensors of type IGS affected by visibility for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IKASC	Index to kind of atmospheric stability condition. (See ICALFA)	I
IMAGE (I,IAF) (15,201)	Initial image of actual air base IAF, where the Ith word is defined as follows: 1-7 Number of AC of type J, J = 1, 7 8-10 Not used 11 Total number aircraft 12 Total shelters 13 Total military personnel ($\times 10^{-2}$) 14 Total civilians upper half ($\times 10^{-2}$) 15 Total civilians lower half ($\times 10^{-2}$)	I
IMAGE1 (I,IAF) (11,201)	Data of actual airbase IAF where the Ith word is defined as follows: 1-6 Any nonzero value denotes the existence of parking area J, J = 1,6 7 Percent of total military personnel in quadrant 1 8 Percent of total military personnel in quadrant 2 9 Percent of total military personnel in quadrant 3 10 Percent of total military personnel in quadrant 4 11 The total number of parking area existing on the base.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IMTYPE (KA) (9)	Index to model type for assessing effects of chemical agent KA IMTYPE = $\begin{cases} 1, \text{Calder-Sutton} \\ 2, \text{EVAP} \\ 3, \text{Porton.} \end{cases}$	I
IMUTMF (L) (2)	Index to method used for movement of side L forces throughout the theater IMUTMF = $\begin{cases} 1, \text{unit moves NCOBAM(L) battle area every cycle} \\ 2, \text{unit moves 1 battle area every NCOBAM(L) cycles.} \end{cases}$	I
INCYL	Current nuclear or chemical subcycle.	W
IND1 (IS,L) (8,2)	Index for making a preemptive nuclear strike into sector IS by side L; equals 1 if a preemptive strike is to be made in sector IS but 0 otherwise.	I
IND2 (IEVNT,L) (7,2)	Index for tactical event being stimulus for side L firing nuclear weapons	I

Variable Name
and Size

Definition

Type

IND2(IEVNT,L)

IND2 =

- 1, if border incursion is to be used as an escalation criterion, 0 otherwise (IEVNT=1)
- 1, if an advance in sector beyond the advance in adjacent sectors is to be used as an escalation criterion, 0 otherwise. (IEVNT=2)
- 1, if an advance in sector beyond a specified distance is to be used as an escalation criterion, 0 otherwise. (IEVNT=3)
- 1, if an advance in sector beyond a specified distance since the last cycle is to be used as an escalation criterion, 0 otherwise. (IEVNT=4)
- 1, if cumulative loss of QRA aircraft is to be used as an escalation criterion, 0 otherwise. (IEVNT=5)
- 1, if cumulative loss of nuclear delivery systems is to be used as an escalation criterion, 0 otherwise. (IEVNT=6)
- 1, if the total distance advanced or rate of advance of the theater attacker is to be used as an escalation criterion, 0 otherwise. (IEVNT=7)

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IND3(L) (2)	Index for firing nuclear weapons based on other side's actions; is 1 if an initial or increased use of nuclear weapons by the other side is to serve as escalation criterion for side L, 0 otherwise.	I
IND4(L) (2)	Index for side L firing nuclear weapons based on the other sides use of chemical weapons (see INDC4).	I
INDC1(IS,L) (8,2)	Index for making a preemptive chemical strike into sector IS by side L; 1 if a preemptive strike is to be made in sector IS, 0 otherwise.	I
INDC2(IEVNT,L) (7,2)	Index for tactical event being stimulus for side L employing chemical weapons	I

Variable Name
and Size

Definition

Type

INDC2 (IEVNT,L)

INDC2 =

- 1, if border incursion is to be used as an employment criterion, 0 otherwise. (IEVNT=1)
- 1, if the advance in sector beyond the advance in adjacent sectors is to be used as an employment criterion, 0 otherwise. (IEVNT=2)
- 1, if an advance in sector beyond a specified distance is to be used as an employment criterion, 0 otherwise. (IEVNT=3)
- 1, if an advance in sector beyond a specified distance since the last cycle is to be used as an employment criterion, 0 otherwise. (IEVNT=4)
- 1, if cumulative loss of QRA aircraft is to be used as an employment criterion, 0 otherwise. (IEVNT=5)
- 1, if cumulative loss of nuclear delivery systems is to be used as an employment criterion, 0 otherwise. (IEVNT=6)
- 1, if the total distance advanced or the rate of advance of the theater attacker is to be used as an employment criterion, 0 otherwise. (IEVNT=7)

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
INDC3(L) (2)	Index for side L firing chemical weapons based on other side's use of nuclear weapons. If initial or increased use of nuclear weapons by other side is to serve as a criterion for employing chemical weapons, the index is 1, 0 otherwise.	I
INDC4(L) (2)	Index for side L firing chemical weapons based on other side's use of chemical weapons. If initial or increased use of chemical weapons by other side is to serve as a criterion for employing chemical weapons, the index is 1, 0 otherwise.	I
INDLB(ITC,L) (3,2)	Indicator that nuclear weapons fired into the active battle area of side L will initiate a move to a higher employment level of chemical weapon against enemy target category ITC; if so INDLB = 1, 0 otherwise.	I
INDLC(ISUB,ITC,L) (4,3,2)	Indicator that nuclear weapons fired against side L COMMZ targets of type ISUB will initiate a move to a higher employment level of chemical weapons against enemy target category ITC; if so INDLC = 1, otherwise equals zero.	I
INDLR(ISUB,ITC,L) (4,3,2)	Indicator that nuclear weapons fired against side L region targets of type ISUB will initiate a move to a higher employment level of chemical weapons against enemy target category ITC; if so INDLR = 1, otherwise equals zero.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
INDTPG(L) (2)	Index to the amount of time side L will stay in chemical protective gear after an attack. INDTPG = 1, four hours; 2, 12 hours.	I
INDX1(I,L) (100,2)	Index to the Ith weapon on the list to be fired, side L.	W
INTAGT(ISUB,L) (4,2)	Index to type agent side L prefers to fire at type ISUB targets.	I
INTDA(IAC,KR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying interdiction (INTDA) missions into enemy region KR.	W
INTDAA(IAC) (7)	Number of INTDA aircraft of type IAC that are alive and continuing on mission.	W
INTDAD(IAC) (7)	Number of INTDA aircraft of type IAC that are damaged but not killed.	W
INTDAH(IAC) (7)	Number of INTDA aircraft of type IAC that are aborting mission and returning home undamaged.	W
INTDAK(IAC) (7)	Number of INTDA aircraft of type IAC that are killed.	W
INTDE(IAC,KR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying escort missions with interdiction aircraft (INTDE) into enemy region KR.	W
INTDEA(IAC) (7)	Number of INTDE aircraft of type IAC that are alive and continuing on mission.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
INTDED(IAC) (7)	Number of INTDE aircraft of type IAC that are damaged but not killed.	W
INTDEH(IAC) (7)	Number of INTDE aircraft of type IAC that are aborting mission and returning home undamaged.	W
INTDEK(IAC) (7)	Number of INTDE aircraft of type IAC that are killed.	W
INTDM(ISUB,L) (4,2)	Index to dissemination mode side L prefers to use on type ISUB targets.	I
INTDS(IAC,KR,L) (7,3,2)	Number of aircraft (sorties) of type IAC on side L flying SAM suppression missions with interdiction aircraft (INTDS) into enemy region KR.	W
INTDSA(IAC) (7)	Number of INTDS aircraft of type IAC that are alive and continuing on mission.	W
INTDSD(IAC) (7)	Number of INTDS aircraft of type IAC that are damaged but not killed.	W
INTDSH(IAC) (7)	Number of INTDS aircraft of type IAC that are aborting mission and returning home undamaged.	W
INTDSK(IAC) (7)	Number of INTDS aircraft of type IAC that are killed.	W
INTRVL(IS) (8)	Index to interval in sector IS for current FEBA position.	W
INUTAR(I,L) (40,2)	Indicator of side L nuclear targets in priority order I.	W
INWFM	Number of weapons fired under current fire mission.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IOMU	Index to order of weapon assessment model is to	I
	$IOMU = \begin{cases} 1, \text{ nuclear chemical, and} \\ \quad \text{conventional weapons} \\ 2, \text{ chemical, nuclear, and} \\ \quad \text{conventional weapons} \\ 3, \text{ nuclear and con-} \\ \quad \text{ventional} \\ 4, \text{ chemical and con-} \\ \quad \text{ventional} \\ 5, \text{ conventional only.} \end{cases}$	
IOSN (ISN) (95)	Index to ownership of supply node ISN	I
	$IOSN (ISN) = \begin{cases} 1, \text{ means Blue} \\ 2, \text{ means Red.} \end{cases}$	
IOSNMS (ISN) (95)	Index to owner of supply node ISN during the last execution of the supply model.	W
IPCMZ	See IPRI	I
IPOPCH	Indicator for use of civilian population centers as constraint to firing chemical weapons	I
	$IPOPCH = \begin{cases} 1, \text{ civilian population} \\ \quad \text{centers are con-} \\ \quad \text{straints to firing} \\ \quad \text{chemical weapons} \\ 0, \text{ civilian centers} \\ \quad \text{do not impose con-} \\ \quad \text{straints to firing} \\ \quad \text{chemical weapons.} \end{cases}$	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IPOPIN	Index to use civilian centers as constraints to firing nuclear weapons	I
	$\text{IPOPIN} = \begin{cases} 1, & \text{civilian centers} \\ & \text{are constraints to} \\ & \text{firing nuclear} \\ & \text{weapons} \\ 0, & \text{civilian centers} \\ & \text{do not impose con-} \\ & \text{straints to firing} \\ & \text{nuclear weapons.} \end{cases}$	
IPRD	Index to printing detailed results.	W
IPRDO(II) (5)	Indicator of combat cycles when detailed output is printed, $1 \leq II \leq 5$.	I
IPREG	See IPRI	I
IPRI(ISU,IZ,L) (7,4,2)	Index to priority list of pre- ferred nuclear targets by side L. The three variables IPRI, IPREG, and IPCMZ are used to form a <u>single</u> priority list of preferred targets when it is assumed that <u>all</u> target types are allowable. No two target types within the three variables may have the same priority. Priorities are listed highest to lowest as 1,2,...,N. The variable	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IPRI (ISU, IZ, L)	IPRI (ISU, IZ, L) Gives the priority of side L battle-field targets of type ISU in zone IZ.	
	IPREG (ITYP, ISUB, L) Gives the priority of side L region targets of type ISUB in area ITYP. (see IALCT)	
	IPCMZ (ISUB, L) Gives the priority of side L COMMZ targets of type ISUB. (see IALCT)	
IPRS	Indicator for printing summary output.	W
IPRSO (II) (30)	Indicator of combat cycles when summary output is printed, $1 \leq II \leq 30$.	I
IPRT	Indicator for print control in CHEMDAM.	W
IPSHLA (J, L) (7, 2)	Index for priority sheltering of aircraft on side L. IPSHLA (J, L) = IAC, if type IAC aircraft gets Jth priority for sheltering.	I
IPSQRA (I, L) (5, 2)	Index for selecting aircraft to fill QRA shortfalls on side L. IPSQRA (I, L) = J if type J QRA aircraft gets Ith priority for filling QRA shortfalls. (I=1, ..., NQRAT(L))	I
IPTSUR (ISU, L) (7, 2)	Index to priority targeting of type ISU subunits in side L divisions in rear areas.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IQRAP(J,L)	Index for indicating for side L which type aircraft is the Jth QRA aircraft.	I
IRAC(IAC,II,L) (7,3,2)	Index of range for side L type IAC aircraft stationed on air bases whose location is given by II (II = 1 means forward air bases, II = 2 means rear air bases, II = 3 means COMMZ air bases).	I
	IRAC = { <ul style="list-style-type: none"> 1, if aircraft of type IAC based in II can fly only air defense 2, if aircraft of type IAC based in II can fly at most CAS 3, if aircraft of type IAC based in II can fly at most to enemy forward air bases 4, if aircraft of type IAC based in II can fly at most to enemy rear air bases 5, if aircraft of type IAC based in II can fly everywhere. 	
IRADTA(L) (2)	Index to region assignment option* for theater attacker when arriving unit is from side L.	I
IRADTD(L) (2)	Index to region assignment option for theater defender when arriving unit is from side L.	I

*Assignment options are discussed in section 2.2.14.2.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ISA(IS) (8)	Index to sector attacker. Index is 1 if side L is attacker in sector IS; 2 is side 2 is attacker in sector IS; 0 means holding.	W
ISCEF(IS) (8)	Indicator for sector IS being constrained due to exposed flank. ISCEF=1 constrained ISCEF=0 unconstrained.	W
ISCL1(ITC,L) (3,2)	The escalation state to be moved to against target category ITC by side L, if the corresponding IND1(IS,L) is 1.	I
ISCL2(IEVNT,ITC,L) (7,3,2)	The escalation state to be moved to against target category ITC by side L, if a preemptive strike is to be initiated.	I
ISMA(IS) (8)	Index to sector of main attack.	W
ISMAI(IS,L) (8,2)	Input variable for indexing sector of main attack for side L. (Needed if ICSMA(L) = 2)	I
	$\text{ISMAI}(\text{IS},\text{L}) = \begin{cases} 1, & \text{index for sector of main attack} \\ 0, & \text{otherwise.} \end{cases}$	
ISNABA(IS,L) (8,2)	Index to supply node for active battle area in sector IS for side L.	I
ISNBA(IBA) (112)	Index to supply node that supplies battle area IBA.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ISSWTC(IWS,L) (4,2)	Index of a type IWS sector chemical system to a particular weapon type for side L where IWS = 1,...,4 and $\text{ISSWTC} = \begin{cases} 1, \text{ medium range missile} \\ 2, \text{ long range missile} \\ 3, \text{ aircraft type} \\ \quad \text{IAC} = 1 \\ 4, \text{ aircraft type} \\ \quad \text{IAC} = 2 \\ 5, \text{ aircraft type} \\ \quad \text{IAC} = 3 \\ 6, \text{ aircraft type} \\ \quad \text{IAC} = 4 \\ 7, \text{ aircraft type} \\ \quad \text{IAC} = 5 \\ 8, \text{ aircraft type} \\ \quad \text{IAC} = 6 \\ 9, \text{ aircraft type} \\ \quad \text{IAC} = 7. \end{cases}$	I
ISSWTN(IWS,L) (5,2)	Index of a type IWS sector nuclear system to a particular weapon type for side L. (See ISSWTC for weapon index values.)	I
ISTAT(IBA) (112)	Index to status of each battle area IBA as defined in subroutine TAG. (ISTAT is a working array)	W
ISUSVE(I,L) (100,2)	Type subunit targeted by the Ith fire mission, side L.	W
ITA	Index to theater attacker $\text{ITA} = \begin{cases} 1, \text{ Blue} \\ 2, \text{ Red.} \end{cases}$	I
ITAAS(IAS,L) (4,2)	Index to type IAS army air sensor for side L $\text{ITAAS} = \begin{cases} 0, \text{ nonglimpse} \\ 1, \text{ glimpse.} \end{cases}$	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ITAFS(IAFS,L) (4,2)	Index to type of air force sensor IAFS for side L ITAFS = $\begin{cases} 0, & \text{nonglimpse} \\ 1, & \text{glimpse.} \end{cases}$	I
ITD(ID) (140)	Index to type of division ID.	I
ITLZN	Target location (or target type) for current mission.	W
ITMPR(IS,L) (8,2)	The cycle at which the side L preemptive nuclear strike is to be initiated in sector IS.	I
ITSWTC(IWS,L) (4,2)	Index of a type IWS theater chemical system to a particular weapon type for side L. (See ISSWTC for weapon index values.)	I
ITSWTN(IWS,L) (5,2)	Index of a type IWS theater nuclear system to a particular weapon type for side L. (See ISSWTC for weapon index values.)	I
ITTD	Name of working file for time-t data.	I
ITTPR(IS,L) (8,2)	The cycle at which the preemptive nuclear strike is to be terminated in sector IS for side L.	I
IUSFRC	Index to use the security force ratio constraint to movement for units in the active battle area	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
	IUSFRC = $\begin{cases} 0, & \text{means no} \\ 1, & \text{means yes.} \end{cases}$	
IUTAM	Index to use target acquisition model. (If 1 = yes, if 0 = no.)	I
IVNAF(IAFC, IDAM, L) (3, 2, 2)	Vulnerability number for air-field component IAFC at damage level IDAM for side L. For this variable and for IVNSP, IVNSSM, and IVNW the vulnerability number will be written as a 4-digit number (with p = 1 and Q = 2) instead of the normal alphanumeric number.	I
	IAFC = $\begin{cases} 1, & \text{aircraft in the open} \\ 2, & \text{aircraft in shelters} \\ 3, & \text{buildings} \end{cases}$	
	IDAM = $\begin{cases} 1, & \text{severe damage} \\ 2, & \text{moderate damage.} \end{cases}$	
IVNSP(L) (2)	Vulnerability number for nuclear assessments by side L against supply point components.	I
IVNSSM(IDAM, L) (2, 2)	Vulnerability number for assessing blast effects against SSMS for damage type IDAM where IDAM = 1, severe damage; IDAM = 2, moderate damage.	I
IVNW(IDAM, IW, L) (2, 10, 2)	Vulnerability number to be used by side L against weapon type IW for damage type IDAM (where IDAM = 1, severe damage; IDAM = 2, moderate damage.)	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IWL(I,L) (100,2)	Index to weapon to be fired in Ith fire mission, side L.	W
IWLBT(I,L) (100,2)	Number of side L targets per Ith mission, (subunits in divisions, or the parking area targeted at airbases).	W
IWLCOT(I,L) (100,2)	Index to side L target type for Ith mission. (ISU for divisions, or ISUB for regions and COMMZ targets.)	W
IWLCT	Index to specific target type for current fire mission.	W
IWLDM	Dissemination mode of current chemical fire mission.	W
IWLDSM(I,L) (100,2)	Index to dissemination mode being used for Ith fire mis- sion, side L.	W
IWLHOB(I,L) (100,2)	HOB associated with the weapon in the Ith nuclear mission, side L.	W
IWLID	Target identification (either division IDS, airbase IAB or supply node ISN) for current fire mission.	W
IWLIDS(I,L) (100,2)	Identification of target for ith mission, for side L (either) division IDS, airbase IAB supply node ISN, or surface-to- surface missile site).	W
IWLKA	Chemical agent type of current chemical fire mission.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IWLKAT(I,L) (100,2)	Index to agent type being used for Ith fire mission, side L.	W
IWLNCR(I,L) (100,2)	Indicator to number of rounds fired on the Ith mission, side L.	W
IWLTAR	Indicator of subunits or air- base parking area ID of cur- rent fire mission.	W
IWLTLO(I,L) (100,2)	Index to category of weapon for Ith mission, side L.	W
IWLTZN(I,L) (100,2)	Index to side L target location for Ith mission, (zones for sub- units in divisions, or ITYP tar- get for airbases, supply nodes, and SSM sites).	W
IWNSVE(I,L) (100,2)	Number of weapons for the Ith fire mission, side L.	W
IWORD(I,IAF) (15,201)	Data for actual airbase IAF where the Ith word is defined as follows: 1-7 Number of type J aircraft, J=1, 7 8-10 Not used 11 Number shelters 12 Number of military per- sons ($\times 10^{-2}$) 13 Fraction surviving military personnel for current cycle 14 Facility degradation due to use of nuclear weapons 15 Current owner of base (None=0, Blue=1, Red=2)	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
IWUCE	Index of weapon to use in computing eigenvalue for the APP method of computing weapon value.	I
IWZBA(IBA)* (112)	Index for weather zone in battle area IBA.	I
IZNSVE(I,L) (100,2)	Zone location of the Ith fire mission, side L.	W
JCHEM	Name of output file for detailed reports for chemical combat.	I
JCON	Name of output file for detailed reports for conventional combat.	I
JINP	Name of output file for input variables and theater control initialized variables.	I
JJ	Another index (besides J) for type of QRA aircraft.	W
JNUC	Name of output file for detailed reports for nuclear combat	I
JS	Indicator of sector.	W
JSUM	Name of output file for summary reports and diagnostics	I

*Values in data statements.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
KAGINO(KTAG) (6)	Index to order of type KTAG inhalation agents from strongest to weakest.	I
KAGPTO(KTAG) (6)	Index to order of type KTAG percutaneous agents from strongest to weakest.	I
KCHATD(IWS,IA,L) (4,4,2)	Index for the IA agent for IWS division chemical weapon sys- tem for side L.	I
KCHATS(IWS,IA,L) (4,4,2)	Index for the IA agent for IWS sector chemical weapon system for side L.	I
KCHATT(IWS,IA,L) (4,4,2)	Index for the IA agent for IWS theater chemical weapon system for side L.	I
KDMSC(KDM,L) (3,2)	Index to dissemination mode (type KDM) selected as second choice when first choice of KDM for side L is unavailable, where KDM = 1, bulk delivery, 2, submunition delivery, 3, spray delivery.	I
KDSMD(LIWS,K,IA) (8,3,4)	Index for the Kth dissemina- tion mode of the IA agent for the IWS division chemical weapon system of side L. (LIWS = (NIWS(L-1) + IWS))	I
KDSMS(LIWS,K,IA) (8,3,4)	Index for the Kth dissemina- tion mode for the IA agent for the IWS sector chemical weapon system of side L.	I
KDSMT(LIWS,K,IA) (8,3,4)	Index for the Kth dissemina- tion mode for the IA agent for the IWS theater chemical weapon system of side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
KFLAG	Indicator that is set to call chemical and nuclear models.	W
KISS	Indicator to sector.	W
KITC	Index to target type: 1, division target; 2, airbases; 3, supply nodes; 4, missile sites; 5, flag for summary print.	W
KIWF (KA,KDM,L) (9,3,2)	Index to agent (KA) and dissemination mode (KDM) combination in first position of chemical weapons list for side L.	W
KIWL (KA,KDM,L) (9,3,2)	Index to agent KA and dissemination mode (KDM) combination in last position of chemical weapons list for side L.	W
KIWYF (IYLD,L) (42,2)	Index to yield (IYLD) in first position of nuclear weapons list, side L.	W
KIWYL (IYLD,L) (42,2)	Index to yield (IYLD) in last position of nuclear weapons list, side L.	W
KOUNT	Counter in chemical model for indexing MAXIW + RDMAX.	W
KPIS (INTS,IS) (18,8)	Kind of posture in interval INTS, sector IS.	I
KPRAG (ISUB,L) (3,2)	Index to preferred agent for attacking type ISUB region or COMMZ targets. ISUB = 1, airfields; 2, supply nodes; 3, SSM sites side. Side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
KPRDM(ISUB,L) (3,2)	Index to preferred dissemination mode for attacking type ISUB region or COMMZ targets. ISUB = 1, airfields; 2, supply nodes; 3, SSM sites. Side L.	I
KPS(IS) (8)	Kind of posture in sector IS (by interval).	W
KPSY(IS) (8)	Kind of posture in sector IS yesterday.	W
KTARAG(ITC,ISU,L) (2,7,2)	Index to type agent side L would use on type ISU subunit in location ITC, where ITC = 1, battlefield, ITC = 2, rear area.	I
KTARDM(ITC,ISU,L) (2,7,2)	Index to dissemination mode side L would use on type ISU subunit in location ITC.	I
KTER(IS) (8)	Kind of terrain in sector IS (by interval).	W
KTERIS(INTS,IS) (18,8)	Kind of terrain in interval INTS, sector IS.	I
KTERTA(IBA)* (112)	Kind of terrain in battle area IBA for target acquisition model.	I
KTYPWS(IWC,IWS,L) (3,4,2)	Index to type IWS chemical weapon system for the IWC weapon category and for side L.	I
KTYPWS = $\begin{cases} 1, & \text{artillery} \\ 2, & \text{air} \\ 3, & \text{missile} \\ 4, & \text{rocket.} \end{cases}$		

*Values in data statements

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
LFIRER	Indicator of side firing current mission.	W
LXOPT(L) (2)	Index to option for the reassignment of side L aircraft within the theater when forward area airbases are under strength.	I
LXOPT(L)	$\text{LXOPT} = \begin{cases} 1, & \text{COMMZ aircraft are reassigned to forward air bases} \\ 0, & \text{no COMMZ aircraft are reassigned to forward air bases.} \end{cases}$	
MA(ISN,KSN)* (100,100)	Block data (in SUPPLY) containing distances from supply node ISN to supply node KSN.	I
MAD(L) (2)	Maximum number of additional divisions for side L (i.e., the number of follow-on divisions, in addition to ND(L).	I
MAXIW(J) (27)	Index to weapon system J (agent and dissemination mode) that can put the desired level of agent or some portion thereof on target. J=1,...,MAXKIA	W
MAXKIA	Maximum number of dissemination mode-chemical agent combinations being used.	I

*Values in data statements.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
MDDABA*	Maximum dimension for number of divisions in any active battle area. (If the model tries to add an additional division to this maximum dimension, the model will stop and print "STOP 1111.")	I
MFOPT(L) (2)	Index to option for computing FEBA location for side L relative to a given FEBA location. $MFOPT = \begin{cases} 1, & \text{use initial base-} \\ & \text{line location} \\ 2, & \text{use time zero} \\ & \text{FEBA location.} \end{cases}$	I
MNDSFC(IWS,L) (4,2)	Maximum number of firings of division chemical system IWS for side L per chemical sub-cycle.	I
MNFRD(IWS,L) (4,2)	Maximum number of firings of division nuclear system IWS for side L per nuclear sub-cycle.	I
MNFRS(IWS,L) (5,2)	Maximum number of firings of sector nuclear system IWS for side L per nuclear subcycle.	I
MNFRT(IWS,L) (5,2)	Maximum number of firings of theater nuclear system IWS for side L per nuclear subcycle.	I
MNIE	Maximum number of iterations for computing eigenvalue.	I

*Values in data statements.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
MNSSFC(IWS,L) (4,2)	Maximum number of firings of sector chemical system IWS for side L per chemical subcycle.	I
MNSUBR(L) (2)	Maximum number of subunits (in rear area divisions) that would be fired upon by side L given full knowledge of division.	I
MNTSFC(IWS,L) (4,2)	Maximum number of firings of theater chemical system IWS for side L per chemical sub- cycle.	I
NAAC(L) (2)	Number of types of army-air carriers, side L.	I
NAB	Number of airbases.	I
NAC(L) (2)	Number of types of aircraft for side L.	I
NAEQRA	Number of types of aircraft eligible to be connected to QRA aircraft.	W
NAFS(L) (2)	Number of air force sensor types for side L.	I
NAM(L) (2)	Number of types of air muni- tions for side L.	I
NAS(L) (2)	Number of army-air sensor types for side L.	I
NB3(JE,L) (4,2)	The number enemy of nuclear weapons fired into the active battle area which will initiate a transition to nuclear escala- tion state JE for side L.	I
NBA	Number of battle areas.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NBC3 (LE,L) (4,2)	The number of enemy nuclear weapons fired into the active battle area which will initiate a transition to chemical employment level LE for side L.	I
NBNLT	Number of boundary longitude points considered.	I
NCBC4 (LE,L) (4,2)	Number of enemy chemical weapons fired against battlefield targets which will initiate a transition to chemical employment level LE by side L.	I
NCBN4 (JE,L) (4,2)	Number of enemy chemical weapons fired against battlefield targets that will initiate a transition to nuclear escalation level JE for side L.	I
NCHATD (IWS,L) (4,2)	Number of types of chemical agents for use by type IWS division chemical weapon systems, on side L.	I
NCHATS (IWS,L) (4,2)	Number of types of chemical agents for use by type IWS sector chemical weapon systems, on side L.	I
NCHATT (IWS,L) (4,2)	Number of types of chemical agents for use by type IWS theater chemical weapon systems, on side L.	I
NCHBT (L) (2)	Number of the last battlefield chemical targets for side L.	W
NCHCT (L) (2)	Number of the last COMMZ chemical targets for side L.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NCHDW(L) (2)	Number of division weapon systems for delivering chemical munitions, side L.	I
NCHRT(L) (2)	Number of the last region chemical targets for side L.	W
NCHSW(L) (2)	Number of sector weapon systems for delivering chemical munitions, side L.	I
NCHTW(L) (2)	Number of theater weapon systems for delivering chemical munitions, side L.	I
NCOBAM(L) (2)	Number of cycles or battle areas side L uses for movement of forces throughout the theater. (see IMUTMF(L))	I
NCRC4(ISUB,LE,L) (4,4,2)	Number of enemy chemical weapons fired against region targets of subtype ISUB which will initiate a transition to chemical employment level LE by side L.	I
NCRN4(ISUB,JE,L) (4,4,2)	Number of enemy chemical weapons fired against type ISUB region targets that will initiate a transition to nuclear escalation level JE for side L.	I
NCSM	Number of conventional combat cycle between updates of the supply model (i.e., major supply cycle).	I
NCWABA(IS,L) (8,2)	Number of chemical weapons received by side L in sector IS.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NCWCZ (ISUB,IS,L) (4,8,2)	Number of chemical weapons side L receives against COMMZ targets type ISUB in sector IS.	W
NCWREG (ISUB,IS,L) (4,8,2)	Number of chemical weapons side L receives against region targets type ISUB in sector IS.	W
NCYCLE	Number of conventional combat cycles to be played.	I
NCZ3 (ISUB,JE,L) (3,4,2)	The number of enemy nuclear weap- ons fired against COMMZ targets of subtype ISUB which will initi- ate a transition to escalation state JE for side L. (ISUB=1, airfield, ISUB=2, supply nodes, ISUB=3, surface-to-surface missiles).	I
NCZC3 (ISUB,LE,L) (4,4,2)	The number of enemy nuclear weapons fired against COMMZ tar- gets of subtype ISUB which will initiate a transition to chemical employment level LE for side L. (see IALCT)	I
NCZC4 (ISUB,LE,L) (4,4,2)	Number of enemy chemical weap- ons fired against COMMZ tar- gets of subtype ISUB WHICH will initiate a transition to chemical employment level LE for side L. (see IALCT)	I
NCZN4 (ISUB,JE,L) (4,3,2)	Number of enemy chemical weap- ons fired against type ISUB COMMZ targets that will ini- tiate a transition to nuclear escalation level JE for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
ND(L) (2)	Number of divisions for side L at time zero.	I
NDCHW(L) (2)	Number of division chemical weapon systems, side L.	W
NDCRDP(LIWS,KIA, IS) (8,12,8)	Number of chemical rounds for the Kth dissemination mode of the IAth agent for the IWS division chemical weapon system in the division pool in sector IS for side L (LIWS = (NIWS(L-1) + IWS)).	W
NDCRSP(LIWS,KIA, IS) (8,12,8)	Number of chemical rounds for the Kth dissemination mode of the IAth agent for the IWS division chemical weapon system in the sector pool in sector IS for side L.	W
NDCRTP(LIWS,K,IA) (8,3,4)	Number of chemical rounds for the Kth dissemination mode of the IAth agent for the IWS division chemical weapon system in the theater pool for side L.	I
NDCWSI(IWS,IS,L) (4,8,2)	Number of division chemical weapon systems type IWS in sector IS for side L.	W
NDFAB(L) (2)	Depth (measured in number of battle areas) of sector forward for side L.	I
NDIBA(IS,L) (8,2)	Number of side L divisions in the first inactive battle area of sector IS.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NDOB7(L) (2)	The number of days that a side L theater attacker plans for the sectors of main attack to reach a depth of DPTH7. If by this time the required advance is not achieved, nuclear weapons may be used.	I
NDOBC7(L) (2)	The number of days that a side L theater attacker plans for the sectors of main attack to reach a depth of DPTH7. If by this time the required advance is not achieved, chemical weapons may be used.	I
NDRAB(L) (2)	Depth (measured in number of battle areas) of sector rear for side L.	I
NDS(IS,L) (8,2)	Number of divisions in active battle area of sector IS for side L.	I
NDSAMS(L) (2)	Number of types of divisional SAMs for side L. (NDSAMS(L) are the last weapons in the list of total types of weapons, NW(L).)	I
NDSMD(IWS,IA,L) (4,4,2)	Number of dissemination modes for each IA agent of the IWS division chemical weapon system for side L.	I
NDSMS(IWS,IA,L) (4,4,2)	Number of dissemination modes for each IA agent for the IWS sector chemical weapon system for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NDSMT(IWS,IA,L) (4,4,2)	Number of dissemination modes for each IA agent of the IWS theater chemical weapon system for side L.	I
NDT	Counter.	W
NDVNW(L) (2)	Number of division nuclear weapon system types for side L.	I
NDWHD(I,K,L+2 (IS-1)) (4,4,16)	Number of warheads of Kth yield for Ith division system for side L in the division pool within sector IS.	W
NDWHS(I,K,L+2 (IS-1)) (4,4,16)	Number of warheads of Kth yield for Ith division system for side L in the sector pool of sector IS.	W
NDWHT(I,K,L) (4,3,2)	Number of warheads of Kth yield for Ith division nuclear weapon system in theater pool for side L. I=1,...,NDVNW; K=1,...,NYLD.	I
NDWSI(IWS,IS,L) (4,8,2)	Number of division weapon systems of type IWS in sector IS for side L.	W
NEAEF(L) (2)	The parameters NEAEF, XAEF, and YAEF define the functional relationship that is used to compute the combat effectiveness of side L divisions on attack as a function of percent personnel strength, where	I
NEAEF(L) (2)	The number of end-points of the piecewise linear segments of the attacker's combat effectiveness function.	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NEAEF(L)	<p>XAEF(IEAEF,L) The percent of personnel strength which gives the abscissa coordinate of the IEAEFth endpoint of the attacker's effectiveness function.</p> <p>YAEF(IEAEF,L) The value of the attacker's effectiveness function at the point (IEAEF,L).</p>	
NEDEF(L) (2)	The parameters NEDEF, XDEF, and YDEF define the functional relationship that is used to compute the combat effectiveness of side L divisions on defense as a function of percent personnel strength, where	I
NEDEF(L) (2)	The number of endpoints of the piecewise linear segments of the defender's combat effectiveness function.	
	XDEF(IEDEF,L) The percent of personnel strength which gives the abscissa coordinate of the IEAEFth endpoint of the defender's combat effectiveness function.	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NEDEF(L)	YDEF(IEDEF,L) The value of the defender's combat effectiveness function at the point (IEDEF,L).	
NEML	Number of chemical employment levels.	I
NEPD(I) (3)	Indicator for printing input data. If 1, variables; 2, initialized data; 3, tables.	I
NESC	Number of nuclear escalation levels.	I
NFMF	The parameters NFMF, XFMF, and YFMF define the functional relationship that is used to compute the FEBA movement when the attacker is in posture KP and terrain KT, with force ratio FRM, and where	I
	NFMF The number of endpoints of the piecewise linear segments of the movement function.	
	XFMF(IFMF) The force ratio value which together with posture type KP and terrain type KT gives the abscissa coordinate of the IFMFth endpoint of the movement function.	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NFMF	YFMF(IFMF,KP, KT) The value of the movement function at the point defined by (KP, KT,XFMF).	
NGS(L) (2)	Number of types of ground sensors for side L.	I
NHSNS(IS) (8)	Highest numbered supply node in sector IS excluding node NSN.	I
NHSR(IRT) (5)	Highest numbered sector in region IR for side L where $IRT=IR+(L-1)*NR(1)$ and $IRT=1,...,NR(1) + NR(2)$.	I
NINHAG	Number of inhalation agents.	I
NINTS	Number of intervals played.	I
NIWAS	Number of weapons in the firing list as passed to CHEMDAM.	W
NLS(L) (2)	Number of types of long range SAMs, side L.	W
NLSNS(IS) (8)	Lowest numbered supply node in sector IS excluding node number 1.	W
NLSR(IRT) (5)	Lowest numbered sector in IR for side L where $IRT=IR+(L-1)*NR(1)$ and $IRT=1,...,NR(1) + NR(2)$.	W
NMS(L) (2)	Number of types of medium range SAMs, side L.	W
NNIWAS(L) (2)	Number of fire missions to be fired by side L.	W
NNSC	Number of subcycles (chemical, nuclear) per conventional combat cycle.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NNYDS(L) (2)	Number of different yields of nuclear weapons for side L.	W
NOCDAB(L) (2)	The parameters NOCDAB, XOCD, YOCDPA, YOCDR define the functional relationship that is used to compute the fraction of air-base operating capability that is destroyed when the airbases are attacked with nuclear weapons	I
NOCDAB(L) (2)	The number of endpoints of the piecewise linear segments of the function (IOCDAB =1,...,NOCDAB).	
XOCD(IOCDAB, L) (7,2)	The number of nuclear weapons that are targeted on the air base which gives the abscissa coordinate of the IOCDABth endpoint.	
YOCDPA (IOCDAB,L) (7,2)	The value of the function at the point (IOCDAB,L) when nuclear weapons are targeted on parking areas.	
YOCDR (IOCDAB,L) (7,2)	The value of the function at the point (IOCDAB,L) when nuclear weapons are targeted on the runway.	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
N OCDPC (L) (2)	The parameters N OCDPC, X OCDP, Y OCDP define the functional relationship that is used to compute the airbase operating capability of side L as a function of the percent casualties (from chemical or nuclear weapons) to military personnel at the airbase.	I
N OCDPC (L) (2)	The number of endpoints of the piecewise linear segments of the function (I OCDPC = 1, ..., N OCDPC).	
X OCDP (I OCDPC, L) (6, 2)	The percent casualties to military personnel at airbases which gives the abscissa coordinate of the I OCDPCth endpoint.	
Y OCDP (I OCDPC, L) (6, 2)	The value of the function at the point (I OCDPC, L).	
N ODIST (L) (2)	The parameters N ODIST, X ODIST, and Y ODIST define the functional relationship that is used to compute the offset distance (meters) to be used when targeting side L type ISU subunits on the attack as a function of delay times caused by target acquisition processing and weapon response time, where	I

Variable Name
and Size

Definition

Type

NODIST(L)

NODIST(L)
(2)

The number of end-points of the piecewise linear segments of the offset distance function.

XODIST
(IODIST,L)
(6,2)

The time delay value which together with type ISU subunits on the attack gives the abscissa coordinate of the IODISTth endpoint of the offset distance function.

YODIST(ISU,
IODIST,L)
(7,6,2)

The value of the offset distance function at the point defined by (ISU,XODIST (IODIST,L)).

NPCAF(L)
(2)

The parameters NPCAF, XPCAF, and YPCAF define the functional relationship that is used to compute percent casualties to the attacker as a function of force ratio and type posture (KP) of the defender.

I

KP = $\begin{cases} 1, \text{ means delay} \\ 2, \text{ means prepared position} \\ 3, \text{ means hasty position.} \end{cases}$

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NPCAF (L)	<p>NPCAF (L) (2)</p> <p>The number of endpoints of the piecewise linear segments of the attacker's casualty function.</p>	
	<p>XPCAF (IPCAF,L) (8,2)</p> <p>The force ratio value which together with the type KP posture gives the abscissa coordinate of the IPCAF endpoint of the attacker's casualty function of side L.</p>	
	<p>YPCAF (KP, IPCAF,L) (3,8,2)</p> <p>The value of the attacker's casualty function at the point defined by (KP,XPCAF(IPCAF,L)).</p>	
NPCDF (L) (2)	<p>The parameters NPCDF, XPCDF, and YPCDF define the functional relationship that is used to compute percent casualties to the defender L as a function of force ratio and type posture (KP) of the defender where</p>	I
	<p>NPCDF (L) (2)</p> <p>The number of endpoints of the piecewise linear segments of the defender's casualty function.</p>	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NPCDF(L)	<p>XPCDF (IPCDF,L) (8,2)</p> <p>The force ratio which together with the type KP posture gives the abscissa coordinate of the IPCDF endpoint of the defender's casualty function for side L.</p> <p>YPCDF(KP, IPCDF,L) (3,8,2)</p> <p>The value of the defender's casualty function at the point defined by (KP,XPCDF(IPCDF,L)).</p>	
NPCHD(IWS,L) (4,2)	Number of positions (i.e., locations) for division chemical weapon system IWS for side L.	I
NPCHS(IWS,L) (4,2)	Number of positions for sector chemical weapon system IWS for side L.	I
NPCHT(IWS,L) (4,2)	Number of positions for theater chemical weapon system IWS for side L.	I
NPERAG	Number of percutaneous agents.	I
NPOSD(IWS,L) (4,2)	The number of positions (locations) for division nuclear weapon system IWS for side L.	I
NPOSS(IWS,L) (5,2)	The number of positions for sector nuclear weapon system IWS for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NPOST(IWS,L) (5,2)	The number of positions for theater nuclear weapon system IWS for side L.	I
NPT(ISU,IZ,IDS) (7,4,30)	Number of potential targets of type ISU in zone IZ in IDSth division in sector.	W
NQRAT(L) (2)	Number of different aircraft types designated as QRA aircraft for side L.	I
NR(L) (2)	Number of regions for side L.	I
NR3(ISUB,JE,L) (4,4,2)	The number of nuclear weapons received against region targets of subtype ISUB which will initiate a transition to escalation state JE side L. (see IALCT)	I
NRBST(L) (2)	Number of range breakpoints used for computing distance that a sensor is from target. Side L.	I
NRC3(ISUB,LE,L) (4,4,2)	The number of nuclear weapons received against region targets of subtype ISUB which will initiate a transition to chemical employment level LE for side L.	I
NS	Number of sectors being played.	I
NSBTD(JE,L) (4,2)	Number of battlefield surface burst target types in escalation state JE side L.	I
NSBTS(JE,L) (4,2)	Number of region surface burst target types in escalation state JE for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NSBTT (JE,L) (4,2)	Number of COMMZ surface burst target types in escalation state JE for side L.	I
NSCHW (L) (2)	Number of sector chemical weapon systems, side L.	W
NSCNW (L) (2)	Number of sector nuclear weapon system types for side L.	I
NSCRSP (LIWS,KIA,IS) (8,12,8)	Number of chemical rounds for the Kth dissemination mode of the IAth agent for the IWS sector chemical weapon system in the sector pool in sector IS for side L. $LIWS = (NIWS * (L-1) + IWS)$	W
NSCRTP (LIWS,K,IA) (8,3,4)	Number of chemical rounds for the Kth dissemination mode of the IAth agent for the IWS sector chemical weapon system in the theater pool for side L.	I
NSCWSI (IWS,IS,L) (4,8,2)	Number of sector weapons systems, type IWS, in sector IS for side L.	W
NSEFF (L) (2)	The parameters NSEFF, XSEFF, and YSEFF define the side L supply effectiveness factor as a function of days of supply on-hand where	I
NSEFF (L)	Gives the number of endpoints used in the piecewise linear segments of the supply effectiveness function.	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NSEFF (L)	<p>XSEFF (ISEFF,L) The number of days of supply on-hand which gives the abscissa coordinate of the ISEFFth endpoint, of the supply effectiveness function.</p> <p>YSEFF (ISEFF,L) The value of the supply effectiveness function at the point (ISEFF,L).</p>	
NSFRD (IWS,IPOS,L) (4,2,2)	Number of rounds fired by division weapon system IWS in position IPOS for side L.	W
NSFRS (IWS,IPOS,L) (5,2,2)	Number of rounds fired by sector weapon system IWS in position IPOS for side L.	W
NSFRT (IWS,IPOS,L) (5,2,2)	Number of rounds fired by theater weapon system IWS in position IPOS for side L.	W
NSN	Number of supply nodes.	I
NSS (L) (2)	Number of types of short range surface-to-air weapons on side L.	W
NST	Number of sectors, temporarily--used as a working variable in the air model to store NS temporarily.	W
NSU (L) (2)	Number of types of subunits for side L.	I
NSUB	Number of target subtypes (ISUB).	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NSUMPS (IWC,IWS,L) (3,4,2)	Number of submunitions in a side L IWS weapon system of weapon category IWC.	I
NSUTD (ISU,ID) (7,140)	Current number of type ISU subunits in division ID. (Input for each division, if different from TOE value, must be entered as floating point numbers.)	I
NSWHS (I,K,L+2 (IS-1)) (5,3,16)	Number of warheads of Kth yield for the Ith sector system for side L in the sector pool in sector IS.	W
NSWHT (I,K,L) (5,3,2)	Number of warheads of Kth yield for Ith sector nuclear weapon system in theater pool for side L. I=1,...,NSCNW; K=1,...,NYLS.	I
NSWSI (IWS,IS,L) (5,8,2)	Number of sector weapon systems of type IWS in sector IS for side L.	W
NT (L) (2)	Number of types of divisions for side L.	I
NTCHW (L) (2)	Number of theater chemical weapon systems, side L.	W
NTCRTP (LIWS,K,IA) (8,3,4)	Number of chemical rounds for the Kth dissemination mode of the IAth agent for the IWS theater chemical weapon system in the theater pool for side L.	I
NTCWSI (IWS,IS,L) (4,8,2)	Number of theater chemical weapon systems, type IWS, in sector IS for side L.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NTHNW(L) (2)	Number of theater nuclear weapon system types, for side L.	I
NTPP	Number of chemical protective posture types.	I
NTR	Number of tactical roles. NTR = 2.	I
NTSUDT(ISU,IT) (7,10)	TOE number of type ISU subunits in division type IT. (Must be entered as floating point numbers.)	I
NTWHT(I,K,L) (5,3,2)	Number of warheads of Kth yield for Ith theater nuclear weapon system in theater pool for side L. I=1,...,NTHNW; K=1,...,NYLT.	I
NTWSI(IWS,IS,L) (5,8,2)	Number of theater nuclear weapon systems of type IWS in sector IS for side L.	W
NTWSU(L) (2)	Number of types of weapons in subunits for side L.	I
NTYP	Number of target types (ITYP) within ISUB.	I
NUCBT(L) (2)	Number of nuclear battlefield targets, side L.	W
NUCCT(L) (2)	Number of nuclear COMMZ targets, side L.	W
NUCRT(L) (2)	Number of nuclear region targets, side L.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
NW(L) (2)	Number of types of division weapons for side L.	I
NWABA(IS,L) (8,2)	Number of nuclear weapons side L receives against battlefield targets in sector IS (TGTWP2).	W
NWCZ(ISUB,IS,L) (4,8,2)	Number of nuclear weapons side L receives against COMMZ targets type ISUB in sector IS.	W
NWREG(ISUB,IS,L) (4,8,2)	Number of nuclear weapons side L receives against region targets type ISUB in sector IS.	W
NYLD(IWS,L) (4,2)	Number of different yields available for side L IWS division nuclear weapon system.	I
NYLS(IWS,L) (5,2)	Number of different yields available for side L type IWS sector nuclear weapon system.	I
NYLT(IWS,L) (5,2)	Number of different yields available for side L type IWS theater nuclear weapon system.	I
NZ(L) (2)	Number of zones within divisions for side L.	I
OCNUC(IAB) (201)	Current operating capability (fraction) of airbase IAB.	W
OCWRP(IW,L) (10,2)	Maximum number of type IW weapons that the repair pool for side L can repair in one cycle (12 hours).	I
PAACAM(IAAC,IM,L) (3,3,2)	Percent of army-air carriers of type IAAC assigned to mission IM for side L (see PAFRAM)	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PAACSM(IAS,IAAC, IM*L) (4,3,6)	Percent of side L type IAAC army-air carriers with type IAS air sector on mission IM for side L (see PAFRAM).	I
PAFRAM(IM,L) (3,2)	Fraction of air force recon- naissance aircraft assigned to mission IM for side L $IM = \begin{cases} 1, & \text{standoff moving} \\ 2, & \text{forward area} \\ 3, & \text{deep area} \end{cases}$ $0 \leq \sum_{IM} PAFRAM(IM,L) \leq 1.$	I
PAJOR(1,L) (1,2)	Probability that an attacker on side L when engaged by an enemy defender, jettisons its ordnance and returns fire (otherwise it tries to outrun the defen- ders).	I
PARHLS(L) (2)	Probability that aircraft returns home when engaged by an enemy long range SAM on side L.	I
PARHMS(L) (2)	Probability that an aircraft returns home when engaged by an enemy medium range SAM on side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PARKAB(L) (2)	Number of parking areas for aircraft on a typical actual airbase on side L.	I
PCSAB(L) (2)	Planned consumption rate of supplies per aircraft by side L (measured in tons/day per aircraft).	I
PCSD(IT) (10)	Planned consumption rate of supplies by type IT divisions (in tons/day).	I
PDADDA(L) (2)	Probability of detection by a side L area defender of escorts and attackers. (Variables PDDASF, PDDEF, PDDASR, PDDASZ, PDDER, PDDEA equivalenced.)	I
PDANS(IAC,L) (7,2)	Probability that a side L type IAC aircraft detects a non-sheltered aircraft on a typical actual airbase.	I
PDASFB(L) (2)	Probability of detection by a side L long range SAM providing area defense of enemy aircraft attacking airbases. (PDAMSF, PDAMSR, PDAMSZ, PDALSF, PDALSR, PDALSZ equivalenced.)	I
PDASSS(L) (2)	Probability of detection by a side L long range area SAMs of SAM suppressor aircraft.	I
PDBBSS(L) (2)	Probability of detection by a side L medium range belt SAM of SAM suppressor aircraft.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PDBDEA(L) (2)	Probability of detection by a side L battlefield defense aircraft of an enemy escort or attack aircraft. (PDCDAS and PDCDCE equivalenced.)	I
PDBDFB(L) (2)	Probability of detection by a side L battlefield defense aircraft of an enemy aircraft flying by. (PDCDFB(l,L) equivalenced.)	I
PDBSFB(L) (2)	Probability of detection by a side L medium range belt SAM of enemy aircraft flying by to targets in the rear.	I
PDDRA(L) (2)	Probability of detection of any side L division in the rear area.	I
PDENS(IBA) (112)	Population density of civilians for battle area IBA.	I
PDENSS	Civilian population density in battle area.	W
PDESAD(L) (2)	Probability of detection by a side L escort of an enemy area defense aircraft. (PDEABD equivalenced.)	I
PDESBD(L) (2)	Probability of detection by a side L escort of an enemy battlefield defense aircraft. (PDCECD and PDAECD equivalenced)	I
PDIV(ID) (140)	Actual number of people in division ID (value entered for division ID if different from TOE number).	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PDMMX(JE,L) (4,2)	Minimum population of a city which constitutes a collateral damage constraint to side L in escalation state JE.	I
PDPSFB(ISS,L) (2,2)	Probability of detection by a side L type ISS short range SAM of enemy aircraft flying by to targets in the rear.	I
PDPSSS(ISS,L) (2,2)	Probability of detection by a side L type ISS short range SAM of enemy SAM suppressor aircraft.	I
PDSHL(IAC,L) (7,2)	Probability that a side L type IAC aircraft detects a shelter on a typical actual air base.	I
PDSSAS(L) (2)	Probability of detection by side L SAM suppressor aircraft of enemy area SAMs. (PDSAMS, PDSALS equivalenced.)	I
PDSSBS(L) (2)	Probability of detection by side L SAM suppressor aircraft of enemy belt SAMs.	I
PDSSMS(L) (2)	Probability of side L detecting enemy surface-to-surface missile sites.	I
PDSSPS(L) (2)	Probability of detection by side L SAM suppressor aircraft of point SAMs. (PDSPMS, PDSPSS, PDMSMC, PDSSSC equivalenced.)	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PDWD(LIWS,K,IA) (8,3,4)	Initial mass median particle diameter (in microns) of agent IA under dissemination mode K for division weapon system LIWS (i.e., division weapon system IWS for side L.	I
PDWS(LIWS,K,IA) (8,3,4)	Initial mass median particle diameter (in microns) of agent IA under dissemination mode K for sector weapon system LIWS.	I
PDWT(LIWS,K,IA) (8,3,4)	Initial mass median particle diameter (in microns) of agent IA under dissemination mode K for theater weapon system LIWS.	I
PENCOR(KR,L) (3,2)	Number of penetration corridors in enemy region KR for side L penetrators.	I
PFAPOS(IPCM,IMT) (8,3)	Relative protection afforded by a type IPCM protection category over no protection against a type IMT chemical agent. (Values ≥ 1.0) IPCM = the value of IPC in FCPPC, and where $IMT = \begin{cases} 1, & \text{high volatility, C-S type} \\ 2, & \text{medium volatility, EVAP type} \\ 3, & \text{low volatility, Porton type.} \end{cases}$	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PIAIM(IAC,I,L) (7,3,2)	Fraction of type IAC interdiction aircraft assigned to interdiction mission I for side L $I = \begin{cases} 1, & \text{SSM sites} \\ 2, & \text{combat divisions in the rear} \\ 3, & \text{supply depots} \end{cases}$ $\sum_{I=1}^3 \text{PIAIM(IAC,I,L)} = 1.$	I
PICVDR(L) (2)	Fraction increase in combat value that a side L division of effectiveness $\geq \text{ERDWLE(L)}$ in the first inactive battle area needs before it replaces a division of effectiveness $\leq \text{EWDRE(L)}$ in the active battle area.	I
PKAD(IAC,KAC,L) (7,7,2)	Probability of kill by a side L type IAC attacker of a type KAC defender if they are engaged.	W
PKANS(IAC,II,L) (7,9,2)	Probability that a side L type IAC aircraft kills a nonsheltered aircraft given that it shoots at one (where II is as in PKASD).	I
PKASD(IAC,II,L) (7,9,2)	Probability that a side L type IAC aircraft kills an aircraft in a shelter given that it shoots at a shelter containing an aircraft, where II is as below	I

Variable Name
and Size

Definition

Type

PKASD(IAC,II,L)

II =

- 1, if the attacker flew from a forward airbase to an enemy forward airbase
- 2, if the attacker flew from a forward airbase to an enemy rear airbase
- 3, if the attacker flew from a forward airbase to an enemy COMMZ airbase
- 4, if the attacker flew from a rear airbase to an enemy forward airbase
- 5, if the attacker flew from a rear airbase to an enemy rear airbase
- 6, if the attacker flew from a rear airbase to an enemy COMMZ airbase
- 7, if the attacker flew from a COMMZ airbase to an enemy forward airbase
- 8, if the attacker flew from a COMMZ airbase to an enemy rear airbase
- 9, if the attacker flew from a COMMZ airbase to an enemy COMMZ airbase.

PKASSM(IAC,I,L)
(7,2,2)

Probability of kill by side L type IAC aircraft against an enemy surface-to-surface missile site of type I (see PWSSMS).

I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PKDAS(IAC,KAC,L) (7,7,2)	Probability of kill by side L type IAC defender of a type KAC attacker or SAM suppressor if they are engaged.	W
PKDE(IAC,KAC,L) (7,7,2)	Probability of kill by a side L type IAC defender of an enemy type KAC escort if they are engaged.	I
PKED(IAC,KAC,L) (7,7,2)	Probability of kill by a side L type IAC escort of a type KAC defender if they are engaged.	W
PKLSA(L) (2)	Probability of kill by a side L long range SAM of enemy air- craft.	I
PKMSA(L) (2)	Probability of kill by a side L medium range SAM of enemy aircraft.	I
PKSSA(ISS,L) (2,2)	Probability of kill by a side L type ISS short range sur- face-to-air weapon of enemy aircraft.	I
PKSSLS(IAC,L) (7,2)	Probability of kill by a side L type IAC SAM suppressor of enemy long range SAMs.	I
PKSSMS(IAC,L) (7,2)	Probability of kill by a side L type IAC SAM suppressor of enemy medium range SAMs.	I
PKSSSS(IAC,ISS,L) (7,2,2)	Probability of kill by a side L type IAC SAM suppressor of enemy type ISS short range surface-to-air weapons.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PMCHC(LE,L) (4,2)	Population size as a constraint by side L for collateral damage in employment level LE.	I
PPNOTF(IS,L)* (8,2)	Number military personnel at the forward notional airbase in sector IS for side L.	I
PPNOTR(IS,L)* (8,2)	Number military personnel at the rear notional airbase in sector IS for side L.	I
PPNOTZ(L)* (2)	Number military personnel at the COMMZ airbase for side L.	I
PRAFSM(IAFS,IM,L) (4,3,2)	Fraction of reconnaissance aircraft with air force sensor of type IAFS assigned to mission IM for side L $IM = \begin{cases} 1, & \text{standoff moving} \\ 2, & \text{forward area} \\ 3, & \text{deep area.} \end{cases}$	I
PRTGTC(ISUB,LE,L) (3,4,2)	Maximum fraction of ISUB region targets side L will target in employment level LE.	I
PRTGTN(ISUB,JE,L) (3,4,2)	Maximum fraction of ISUB region targets side L will target in escalation state JE.	I
PSJOR(1,L) (1,2)	Probability that a side L SAM suppressor when engaged by an enemy defender, jettisons its ordnance and returns fire (otherwise it tries to outrun the defender).	I

*Values input here will override the values for each notional airbase as calculated from data on actual airbases (IMAGE)

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PSRADS (ISU,L) (4,2)	Probability that a side L type ISU subunit located in the rear area is detected.	W
PSRSC (ISS,IS,L) (2,8,2)	Number of side L type ISS short range SAMs (or AAA) providing point defenses for units in combat in sector IS.	W
PSRSCA (ISS,IS) (2,8)	Number of short range SAMs of type ISS defending units in combat in sector IS that are alive and operating.	W
PSRSCD (ISS) (2)	Number of short range SAMs of type ISS defending units in combat that are damaged but not killed.	W
PSRSCK (ISS) (2)	Number of short range SAMs of type ISS defending units in combat that are killed.	W
PSRSCS (ISS) (2)	Number of short range SAMs of type ISS defending units in combat that are suppressed.	W
PSRSF (ISS,IR,L) (2,3,2)	Number of side L type ISS short range SAMs (or AAA) providing point defenses for forward air-bases in region IR.	I
PSRSFA (ISS) (2)	Number of short range SAMs of type ISS defending forward air-bases that are alive and operating.	W
PSRSFD (ISS) (2)	Number of short range SAMs of type ISS defending forward air-bases that are damaged but not killed.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PSRSFK(ISS) (2)	Number of short range SAMs of type ISS defending forward air-bases that are killed.	W
PSRSFS(ISS) (2)	Number of short range SAMs of type ISS defending forward air-bases that are suppressed.	W
PSRSI(ISS,IS,L) (2,8,2)	Number of side L type ISS short range SAMs (or AAA) providing point defenses for interdiction targets in sector IS.	W
PSRSIA(ISS,IS) (2,8)	Number of short range SAMs of type ISS defending interdiction targets in sector IS that are alive and operating.	W
PSRSID(ISS) (2)	Number of short range SAMs of type ISS defending interdiction targets that are damaged but not killed.	W
PSRSIK(ISS) (2)	Number of short range SAMs of type ISS defending interdiction targets that are killed.	W
PSRSIS(ISS) (2)	Number of short range SAMs of type ISS defending interdiction targets that are suppressed.	W
PSRSR(ISS,IR,L) (2,3,2)	Number of side L type ISS short range SAMs (or AAA) providing point defenses for rear air-bases in region IR.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PSRSRA(ISS) (2)	Number of short range SAMs of type ISS defending rear air-bases that are alive and operating.	W
PSRSRD(ISS) (2)	Number of short range SAMs of type ISS defending rear air-bases that are damaged but not killed.	W
PSRSRK(ISS) (2)	Number of short range SAMs of type ISS defending rear air-bases that are killed.	W
PSRSRS(ISS) (2)	Number of short range SAMs of type ISS defending rear air-bases that are suppressed.	W
PSRSZ(ISS,L) (2,2)	Number of side L type ISS short range SAMs (or AAA) providing point defenses for COMMZ air bases.	I
PSRSZA(ISS) (2)	Number of short range SAMs of type ISS defending COMMZ air-bases that are alive and operating.	W
PSRSZD(ISS) (2)	Number of short range SAMs of type ISS defending COMMZ air-bases that are damaged but not killed.	W
PSRSZK(ISS) (2)	Number of short range SAMs of type ISS defending COMMZ air-bases that are killed.	W
PSRSZS(ISS) (2)	Number of short range SAMs of type ISS defending COMMZ air-bases that are suppressed.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PSSSLS(L) (2)	Probability of suppression by side L SAM suppressor of enemy long range SAMs.	I
PSSSMS(L) (2)	Probability of suppression by a side L SAM suppressor of enemy medium SAMs.	I
PSSSSS(ISS,L) (2,2)	Probability of suppression by a side L SAM suppressor of enemy type ISS short range surface-to-air weapons.	I
PSZD(ISU,IZ,L) * (7,4,2)	Probability that side L type ISU subunit in zone IZ is detected.	I
PSZDDS(ISU,IZ,IDS) (7,4,30)	Fraction of units of type ISU detected in zone IZ in division IDS (TARACQ).	W
PWATS(IW,I,L) (10,4,2)	The fraction of side L type IW weapons that are damaged and abandoned when the unit is in tactical situation I	I
	$I = \begin{cases} 1, & \text{attack} \\ 2, & \text{prepared defense} \\ 3, & \text{delay} \\ 4, & \text{inactive (i.e., holding or in reserve).} \end{cases}$	
PWDRP(IW,L)	Fraction of side L type IW weapons that were damaged but are assumed to be repairable.	I

*Used only if the probability of detection values (normally calculated by the target acquisition model) are a direct user input.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
PWNCTS(IW,I,L) (10,2,2)	Fraction of side L type IW weapons that are noncombat losses when the unit is in tactical situation I $I = \begin{cases} 1, & \text{active} \\ 2, & \text{inactive} \end{cases}$ (all are assumed to be repairable).	I
PWRCRP(IW,L) (10,2)	Fraction of side L type IW weapons that can be repaired in one cycle (12 hours) and sent to the replacement pool.	I
PWSF(IW,L) (10,2)	Percent weapons of type IW in the standard force for side L.	I
PWSSMS(I,L) (2,2)	Number of people associated with a type I SSM site for side L where $I = \begin{cases} 1, & \text{medium range missile/rocket site} \\ 2, & \text{long range missile/rocket site.} \end{cases}$	I
PZDPTH(IZ,L) (4,2)	Fraction of side L division depth classified as zone IZ $\sum_{NZ} PZDPTH(IZ,L) = 1, \text{ for } L = 1 \text{ and } 2.$ IZ	I
QRACZ(J,L) (5,2)	Number of side L type J QRA aircraft on COMMZ air bases. J=1,...,NQRAT.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
QRAFS(J,IS,L) (5,8,2)	Number of side L type J QRA aircraft on forward airbases in sector IS.	I
QRAK(IS,L) (8,2)	Number of QRA aircraft lost by side L in sector IS.	W
QRARS(J,IS,L) (5,8,2)	Number of side L type J QRA aircraft on rear airbases in sector IS.	I
RAACM(IAAC,I,L) (3,3,2)	Rate of attrition for army-air carriers of type IAAC on mission I for side L (12 hour rate)	I
	$I = \begin{cases} 1, & \text{standoff moving} \\ 2, & \text{forward area} \\ 3, & \text{deep area.} \end{cases}$	
RAAFRM(IM,L) (3,2)	Rate of attrition for air force reconnaissance aircraft assigned to mission IM for side L (air-to-air and ground-to-air attrition) (12 hour rate)	I
	$IM = \begin{cases} 1, & \text{standoff moving} \\ 2, & \text{forward area} \\ 3, & \text{deep area.} \end{cases}$	
RAASDT(IAS,ISU,L) (4,7,2)	Rate at which side L type IAS air sensor detects type ISU subunit.	I
RACAM(IS,IM,L) (8,3,2)	Number of available air force reconnaissance aircraft in sector IS assigned to mission IM for side L.	W
RACCZ(L) (2)	Number of air force reconnaissance aircraft in COMMZ for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
RACFS (IS,L) (8,2)	Number of air force reconnais- sance aircraft in forward sec- tor IS for side L.	I
RACRS (IS,L) (8,2)	Number of air force reconnais- sance aircraft in rear sector IS for side L.	I
RADBPT (IRS) (4)	Radiation level breakpoints in the range between 0, and 2000, for initial nuclear radiation intervals IRST. IRS=1,...,4 and IRST=1,...,5.	I
RAEVP (KA) (9)	Rate at which chemical agent KA evaporates from the ground at temperatures used in the model.	I
RAFSDT (IAFS,ISU,L) (4,7,2)	Rate at which side L type IAFS air force sensor detects type ISU subunit.	I
RANGE	Expected range from sensor to target used in target acqui- sition equation for a particular sensor operation	W
RDBPTA (IPC) (8)	Breakpoint for yield interval when calculating radius of damage from airburst weapon against personnel in protec- tion category IPC (see variable FCPPC).	I
RDBPTS (IPC) (8)	Breakpoint for yield interval when calculating radius of damage from surface burst weapon for weapon effects against personnel in protec- tion category IPC (see FCPPC).	I
RDCFA (IPC,I) (8,2)	Yield coefficient for airburst weapon in the Ith yield interval when calculating radius of dam- age for weapon effects against personnel is IPC protection cate- gory (see variable FCPC).	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
RDCFS(IPC,I) (8,2)	Yield coefficient in the Ith yield interval when calculating radius of damage from surface burst weapon for weapon effects against personnel in protection category IPC (see variable FCPPC).	I
RDEXPA(IPC,I) (8,2)	Yield exponent for airburst weapon in the Ith yield interval when calculating radius of damage for weapon effects against personnel in IPC protection category (see FCPPC).	I
RDEXPS(IPC,I) (8,2)	Yield exponent in the Ith yield interval when calculating radius of damage from surface burst weapon for weapon effects against personnel in protection category IPC (see variable FCPPC).	I
RDMAX(J) (27)	Percent of preferred quantity of agent that weapon system J can put on target.	W
RDPLDV(IWS,IPOSD,L) (4,2,2)	Average distance from the FEBA for deployment of side L type IWS division nuclear weapon system in position IPOSD.	I
RDPLSC(IWS,IPOSS,L) (5,2,2)	Average distance from the FEBA for deployment of side L type IWS sector nuclear weapon system in position IPOSS.	I
RDPLTH(IWS,IPOST,L) (5,2,2)	Average distance from the FEBA for deployment of side L type IWS theater nuclear weapon system in position IPOST.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
RDSIGA(IPC,I) (8,2)	Sigma associated with the Ith yield interval when calcu- lating radius of damage from airburst weapon for weapon effects against personnel in IPC protection category (see variable FCPPC).	I
RDSIGS(IPC,I) (8,2)	Sigma associated with the Ith yield interval when calcu- lating radius of damage from surface burst weapon for weapon effects against person- nel in protection category IPC (see variable FCPPC).	I
RDSSMS(I,L) (2,2)	Radius (in meters) of side L type I SSM site (see SSMSFS).	I
RDSUR(ISU,L) (7,2)	Radius (in meters) of type ISU subunit in reserve posture.	I
REPARA(IAC) (7)	Number of type IAC aircraft that are repaired during the cycle.	W
REPARL(1)	Number of long range SAMs that are repaired during the cycle.	W
REPARM(1)	Number of medium range SAMs that are repaired during the cycle.	W
REPARS(ISS) (2)	Number of type ISS short range SAMs that are repaired during the cycle.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
RFATCM(ITC,LE,L) (3,4,2)	Relative fraction (or importance) of aircraft assigned to chemical missions against target category ITC for employment level LE, side L.	I
RFATNM(ITC,JE,L) (3,4,2)	Relative fraction (or importance) of side L aircraft assigned to nuclear missions against target category ITC for escalation state JE.	I
RGSDT(IGS,ISU,L) (5,7,2)	Rate at which side L type IGS ground sector detects type ISU subunit.	I
RHO(KA) (9)	Density (gm/cm ³) of liquid component of type KA agent.	I
RMXCH(ISU,LE,L) (7,4,2)	Maximum depth that side L will target ISU subunit in employment level LE.	
RMXDP(ISU,JE,L) (7,4,2)	Maximum depth beyond the FEBA that side L may target type ISU subunit in escalation state JE.	I
RNGCHD(IWS,L) (4,2)	Range of type IWS division chemical weapon system for side L.	I
RNGCHS(IWS,L) (4,2)	Range of type IWS sector chemical weapon system for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
RNGCHT(IWS,L) (4,2)	Range of type IWS theater chemical weapon system for side L.	I
RNGDW(IWS,L) (4,2)	Range of side L type IWS division nuclear weapon system.	I
RNGSW(IWS,L) (5,2)	Range of side L type IWS sector nuclear weapon system.	I
RNGTW(IWS,L) (5,2)	Range of side L type IWS theater nuclear weapon system.	I
RPCZ(1,L) (1,2)	Number of people in the COMMZ replacement pool identified by side L and country (currently the country identification is dimensioned to 1).	I
RPSICL(KA) (9)	Reciprocal of the probit slope of the dosage response function for the type KA agent (standard deviation of \log_{10} dosage from $\log_{10}(\text{ICT}_{50})$).	I
RPSIDL(KA) (9)	Reciprocal of the probit slope of the dose response function for type KA agent (standard deviation of \log_{10} dose from the $\log_{10}(\text{ID}_{50})$).	I
RPSLCL(KA) (9)	Reciprocal of the probit slope of the dosage response function for type KA agent (standard deviation of \log_{10} dosage from $\log_{10}(\text{LCT}_{50})$).	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
RPSLDL(KA) (9)	Reciprocal of the probit slope of the dose response function for type KA agent (standard deviation of \log_{10} dose from the $\log_{10}(\text{LD}_{50})$).	I
RRAPL(IAC,L) (7,2)	Fraction of side L type IAC aircraft that are repaired in one cycle.	I
RRLSPL(1,L) (1,2)	Fraction of side L long range range SAMs that are repaired in one cycle.	I
RRMSPL(1,L) (1,2)	Fraction of side L medium range SAMs that are required in one cycle.	I
RRSSPL(ISS,L) (2,2)	Fraction of side L short range SAMs, type ISS, that are repaired in one cycle.	I
RSAMS(L) (2)	Raid size (in number of aircraft) to attack a surface-to-surface missile site for side L.	I
RSMIN(L) (2)	Minimum raid size for attacking airbases--used to determine the number of airbases that will be attacked by side L.	I
RVLOST(KTR) * (6)	"Line-of-sight" range (in meters) in type KTR terrain. KTR=1,...,6 (see Target Acquisition).	I

*Values in data statements.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
SABAF (IAC,IS,L) (7,8,2)	Number of successful ABA sorties by side L type IAC aircraft against forward airbases in sector IS.	W
SABAR (IAC,IS,L) (7,8,2)	Number of successful ABA sorties by side L type IAC aircraft against rear airbases in sec- tor IS.	W
SABAZ (IAC,L) (7,2)	Number of successful ABA sorties by side L type IAC aircraft against COMMZ airbases.	W
SABCZ (L) (2)	Supplies at side L airbase in COMMZ.	I
SABFS (IS,L) (8,2)	Supplies at side L airbase in sector forward of sector IS.	I
SABRS (IS,L) (8,2)	Supplies at side L airbase in sector rear of sector IS.	I
SACCZ (L) (2)	Supplies at COMMZ notional airbase for side L.	W
SACFRB (IS,I,L) * (8,2,2)	Number of shelters for air- craft on forward (I = 1) or rear (I = 2) airbases for side L, in sector IS.	I
SACZB (L) * (2)	Number of shelters for air- craft on notional COMMZ air- bases for side L.	I
SACZBK (L) (2)	Shelters for side L air- craft on COMMZ airbases killed (destroyed) during current cycle.	W

*Values input here for notional airbases will override shelter
values derived from data on actual airbases (IMAGE).

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
SAFRBK(IS,I,L) (8,2,2)	Shelters for aircraft on side L forward (I=1) and rear (I=2) airbases in sector IS killed (destroyed) during current cycle.	W
SAMA(IAM,KW,L) (6,10,2)	Standard allocation of side L type IAM air munition against a side K type KW ground weapon when side L is the attacker ($L \neq K$).	I
SAMD(IAM,KW,L) (6,10,2)	Standard allocation of side L type IAM air munition against a side K type KW ground weapon when side L is the defender ($L \neq K$).	I
SATCON(KA) (9)	Saturation concentration (mg/m^3) of vapor for type KA agent.	I
SAWA(IW,KW,L) (10,10,2)	Standard allocation of side L type IW ground weapon against a side K type KW ground weapon when side L is the attacker ($L \neq K$).	I
SAWD(IW,KW,L) (10,10,2)	Standard allocation of side L type IAM air munition against a side K type KW ground weapon when side L is the defender ($L \neq K$).	I
SBNDLT(IBNLT,IS) (7,9)	Boundary latitude at longitude point IBNLT of the northern part of sector IS where $1 \leq \text{IBNLT} \leq \text{NBNLT}$ and $1 \leq \text{IS} \leq \text{NS} + 1$.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
SCMNDP(IWS,JE,L) (5,4,2)	Minimum depth (in km) beyond the FEBA that sector nuclear weapon system IWS may be fired when side L is in escalation state JE.	I
SDIV(ID) (140)	Actual number of supplies (in tons) in division ID. (Value entered for division ID if different from the TOE value.)	I
SEAADA(IAS,L) (4,2)	Sensor error (in meters) for type IAS army-air sensor on deep area search mission. Side L.	I
SEAFDA(IAFS,L) (4,2)	Sensor error (in meters) for type IAFS air force sensor on deep area search mission. Side L.	I
SFRFE(IFR,L) (2,2)	Security force ratio for flank exposure.	I
	SFRFE(1,L) Ratio of attacker to defender security forces above which attacker L will accept an exposed flank of greater than FEAFA(L).	
	SFRFE(2,L) Ratio of attacker to defender security forces that attacker L needs to allow a flank exposure of FEAFA(L) + FEISF(L). IFR = 1,2.	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
SHAFAC (ISU, IZ, L) (7, 4, 2)	Shape factor which gives ratio of width to depth for type ISU subunit in zone IZ for side L (used in chemical assessments).	I
SIGDL (KA) (9)	The change in \log_{10} particle diameter for one sigma change in mass of type KA agent (the reciprocal of the probit slope of the log normal particle size distribution).	I
SIGY1	Horizontal crosswind dispersion parameter (meters) for chemical agents dispersed in a normal line source.	I
SINTDA (IAC, IS, L) (7, 8, 2)	Number of successful INTD sorties by side L type IAC aircraft against interdiction in sector IS.	W
SLNGTH (J, KDM, L) (2, 3, 2)	Source length for a line source of chemical agent from type J weapon system under dissemination mode KDM for side L. $J = \begin{cases} 1, & \text{artillery (linear sheaf)} \\ 2, & \text{air ("stick of bombs," bulk filled).} \end{cases}$	I
SLSCAS (IAC, L) (7, 2)	Side K (K = 3-L) supplies destroyed in the active battle area for each sortie of a side L type IAC aircraft on CAS attack (tons of supply per sortie).	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
SLWCB(IW,L) (10,2)	Side K (K = 3-L) supplies destroyed in the active battle area for each side L type IW weapon in combat (tons of supply/weapon).	I
SMXRPL(L) (2)	Maximum number of side L SAMs of any type that can be repaired in one cycle in the repair pool.	I
SNASBA(L) (2)	Smallest number of aircraft or shelters per side L airbase before ABA mission is changed to CAS mission.	I
SNLTLN(IL,ISN) (2,95)	Latitude and longitude location of supply node ISN (IL = 1, latitude, IL = 2, longitude).	I
SQMPTS(L) (2)	Area (in square meters) occupied per ton of supplies, for side L.	I
SRACM(IAC,J,L) (7,9,2)	Sortie rate for a side L type IAC aircraft on a type J mission (12 hour rate)	I
	J = { <ul style="list-style-type: none"> 1, belt SAM suppression 2, battlefield defense 3, area defense 4, airbase attack 5, close air support 6, interdiction 7, escort for airbase attack 8, escort for close air support 9, escort for interdiction. 	

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
SRRAC (L) (2)	Sortie rate for air force reconnaissance aircraft for side L. (12 hour rate).	I
SSMSFS (I,IS,L) (2,8,2)	Number of side L surface-to- surface missile sites of type I in forward sector IS $I = \begin{cases} 1, & \text{medium range missiles} \\ 2, & \text{long range missiles.} \end{cases}$	I
SSMSRS (IS,L) (8,2)	Number of long range surface- to-surface missile sites in rear sector IS for side L.	I
SUPASN (ISN) (95)	Negative supplies arriving to supply node ISN during cycle ICASN(L).	W
SUPIN (ISN) (95)	Supply inventory at node ISN (1 ≤ ISN ≤ 95).	I
SWAFDS (IAFS,ISU,L) (4,7,2)	The expected swath-width at which a side L, type IAFS air force sensor will detect an enemy subunit of type ISU.	I
SWASDS (IAS,ISU,L) (4,7,2)	The expected swath-width at which a side L, type IAS army- air sensor will detect an enemy subunit of type ISU.	I
SYD100	The horizontal dispersion parameter of the source cloud at a reference distance of 100 meters from point source.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
SYSD(LIWS,K,IA) (8,3,4)	The horizontal dispersion parameter of the source cloud (from an initial volume source) of type IA agent from IWS division weapon system under dissemination mode K for side L (LIWS = NIWS(L-1) + IWS).	I
SYSS(LIWS,K,IA) (8,3,4)	The horizontal dispersion parameter of the source cloud (from an initial volume source) of agent IA from IWS sector weapon system with dissemination mode K for side L.	I
SYST(LIWS,K,IA) (8,3,4)	The horizontal dispersion parameter of the source cloud (from an initial volume source) of agent IA from IWS theater weapon system with dissemination mode K for side L.	I
SZDSRD	The vertical dispersion parameter of the source cloud at a stated reference distance of either 20 or 100 meters.	I
SZSD(LIWS,K,IA) (8,3,4)	The vertical dispersion parameter of the source cloud (from an initial volume source) of type IA agent from the IWS division weapon system under dissemination mode K for side L.	I
SZSS(LIWS,K,IA) (8,3,4)	The vertical dispersion parameter of the source cloud (from an initial volume source) of agent IA from IWS sector weapon system with dissemination mode K for side L.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
SZST(LIWS,K,IA) (8,3,4)	The vertical dispersion parameter of the source cloud (from an initial volume source) of agent IA from IWS theater weapon system with dissemination mode K for side L.	I
TACND(IAAC,L) (3,2)	TOE number of side L type IAAC army-air carriers in a notional division.	I
TAASSD(IAAC,IAS,L) (3,4,2)	Total time in hours that a type IAS army-air sensor in a type IAAC air carrier searches a division area for subunits ($\leq 12./NNSC$). Side L.	I
TACAFR(IAFS, IRBST,L) (4,5,2)	Target acquisition CEP (in meters) of side L air force sensor IAFS in range interval IRBST. IRBST=1,...,NRBST.	I
TACASR(IAS, IRBST,L) (4,5,2)	Target acquisition CEP (in meters) of side L army-air sensor IAS in range interval IRBST.	I
TACGSR(IGS, IRBST,L) (5,5,2)	Target acquisition CEP (in meters) of side L ground sensor IGS in range interval IRBST.	I
TACGT	Total (estimated) number of undamaged aircraft of all types on the ground as targets on a notional airbase.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
TACQT	Total number of undamaged QRA aircraft on the ground as targets at notional airbases.	W
TADSRA(ISU,L) (7,2)	Target acquisition delay time for side L subunit of type ISU.	W
TADSZD(ISU,IZ,IDS) (7,4,30)	Target acquisition delay time for subunit ISU in zone IZ in division location IDS.	W
TADTAF(IAFS,L) (4,2)	Target acquisition delay time (in hours) for side L type IAFS air force air sensor.	I
TADTAS(IAS,L) (4,2)	Target acquisition delay time (in hours) for side L type IAS army-air sensor.	I
TADTGS(IGS,L) (5,2)	Target acquisition delay time (in hours) for side L type IGS ground sensor.	I
TADTSZ(IZ,L)* (4,2)	Delay time (minutes) in processing acquisition information on subunits in zone IZ for side L.	W
TAESRA(ISU,L)	Target acquisition sensor error against a side L subunit of type ISU.	W
TAESZD(ISU,IZ,IDS) (7,4,30)	Target acquisition sensor error against subunit ISU in zone IZ in division location IDS.	W
TAFSSD(IAFS,L) (4,2)	Total time in hours a type IAFS air force sensor searches a division area for subunits ($\leq 12./\text{NNSC}$). Side L.	I

*These variables become input variables if the probability of detection values (normally calculated by the target acquisition model) are direct user input.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
TASESZ (IZ,L)* (4,2)	Sensor error (in meters) in acquiring subunits in zone IZ for side L.	W
TCSU (I,L) (100,2)	Total chemical casualties per subunit for the Ith fire mission, side L.	W
TCZN (I,L) (100,2)	Total chemical casualties per zone for the Ith fire mission, side L.	I
TD	Theater defender.	W
TDCWPT (L) (2)	Time delay (minutes) for chemical warning to reach side L personnel in primary target.	I
TDCWST (L) (2)	Time delay (minutes) for chemical warning to reach side L Personnel in secondary target.	I
TGSND (IGS,L) (5,2)	TOE number of side L type IGS ground sensors in a notional division.	I
THFR (J,L) (2,2)	Threshold fraction of surviving type-J TOE nuclear weapons which constitutes escalation for event IEVNT=6 for side L (J = 1, missiles/rockets; J = 2, artillery).	I
THFRC (L) (2)	Threshold fraction of surviving QRA aircraft which constitutes nuclear escalation for event IEVNT=5 for side L.	I
THMNDP (IWS,JE,L) (5,4,2)	Minimum depth (in kms) beyond the FEBA that theater nuclear weapon system IWS may be fired when side L is in escalation state JE.	I

*These variables become input variables if the probability of detection values (normally calculated by the target acquisition model) are a direct user input.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
THQRAC(L) (2)	Threshold fraction of surviving QRA aircraft that will initiate chemical employment for IEVNT=5, side L.	I
THWPC(J,L) (2,2)	Threshold fraction of surviving type-J TOE nuclear weapons (J=1, missiles; j=2, artillery) that will initiate chemical employment for IEVNT=6, side L.	I
TLRSSC(1,L) (1,2)	Total number of side L long range SAMs suppressed during the cycle.	W
TMBOCW(L) (2)	Time (in minutes) required for side L personnel to don masks based on a chemical attack warning.	I
TMRSSC(1,L) (1,2)	Total number of side L medium range SAMs suppressed during the cycle.	W
TNOWP(J,IS,L) (2,8,2)	TOE number of nuclear weapons (J=1, missiles, J=2, artillery) for side L in sector IS.	W
TPD(IT) (10)	TOE number of people in type IT division.	I
TPSUTD(ISU,IT) (7,10)	TOE number of personnel in subunit type ISU in division type IT.	I
TQRA(IS,L) (8,2)	Starting number of QRA aircraft of side L in sector IS.	W
TQRAF	Total number of QRA aircraft of all types on forward airbases in sector IS for the side.	W
TQRAR	Total number of QRA aircraft of all types on rear airbases in sector IS for the side.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
TQRAZ	Total number of QRA aircraft of all types on COMMZ airbases for the side.	W
TRGM(IPC) (8)	Fraction of gamma radiation that is transmitted through protection category IPC (see variable FCPPC).	I
TRNT(IPC) (8)	Fraction of neutron radiation that is transmitted through protection category IPC (see variable FCPPC).	I
TSRSSC(ISS,L) (2,2)	Total number of side L type ISS short range SAMs suppressed during the cycle.	W
TTIRD(IRST) (5)	Time (in days) to reach combat ineffectiveness based on the midpoint level of radiation interval IST as defined by RADBPT where IRST=1,...,5.	I
TWD(IW,IT) (10,2)	TOE number of type IW weapons in type IT division.	I
TWSUTD(IWSU,ISU,IT) (4,7,10)	TOE number of type IWSU weapons in type ISU subunit in type IT division.	I
UBABAF	Upper bound on the number of actual airbases that will be attacked when a notional forward airbase is attacked.	W

AD-A091 493

COMMAND AND CONTROL TECHNICAL CENTER WASHINGTON DC F/G 9/2
INSTITUTE FOR DEFENSE ANALYSES TACTICAL WARFARE (TACWAR) MODEL.--ETC(U)
SEP 77 M C FLYTHE, P FINNEGAN, J REIERSON

UNCLASSIFIED

CCTC-CSM-MM-237-77

NL

3 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

4 - 4

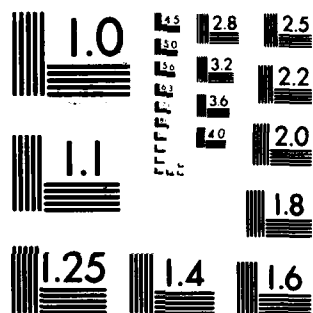
4 - 4

4 - 4

4 - 4

4 - 4

4 - 4



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
UBABAR	Upper bound on the number of actual airbases that will be attacked when a notional rear airbase is attacked.	W
UBABAZ	Upper bound on the number of actual airbases that will be attacked when a notional COMMZ airbase is attacked.	W
VAABA(IS,L) (8,2)	Value of side L aircraft on attack in active battle area of sector IS.	W
VADBA(IS,L) (8,2)	Value of side L aircraft on defense in active battle area of sector IS.	W
VAMAW(IAM,KW,L) (6,10,2)	Value of side L type IAM air munition against a side K type KW ground weapon when side L is the attacker ($L \neq K$).	I
VAMDW(IAM,KW,L) (6,10,2)	Value of a side L type IAM air munition against a side K type KW ground weapon when side L is the defender ($L \neq K$).	I
VELAAC(IAAC,L) (3,2)	Velocity (km/hr) of side L type IAAC army air carrier.	I
VELRAC(L) (2)	Velocity (km/hr) of side L air force reconnaissance aircraft.	I
VGABA(IS,L) (8,2)	Value of side L ground forces on attack in active battle area of sector IS.	W
VGDBA(IS,L) (8,2)	Value of side L ground forces on defense in active battle area of sector IS.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
VHRBST(IRBST,L) (5,2)	Value of highest endpoint (in kms) for range interval IRBST for side L when computing sensor error. IRBST = 1,...,NRBST.	I
VIAASF(IAC,L) (7,2)	Value of an individual type IAC aircraft on attack (standard force) for side L.	W
VIADSF(IAC,L) (7,2)	Value of an individual type IAC aircraft on defense (standard force) for side L.	W
VISTWZ(ITM,IWZ)* (40,11)	Visibility (in meters) in weapon zone IWZ at time period ITM, in 12 hour cycles.	I
VIWASF(IW,L) (10,2)	Value of an individual type IW weapon on attack (standard force) for side L.	W
VIWAW(IW,KW,L) (10,10,2)	Value of an individual side L type IW ground weapon against an individual side K type KW ground weapon when side L is the attacker ($L \neq K$).	I
VIWDSF(IW,L) (10,2)	Value of an individual type IW weapon on defense (standard force) for side L.	W
VIWDW(IW,KW,L) (10,10,2)	Value of an individual side L type IW ground weapon against an individual side K type KW ground weapon when side L is the defender ($L \neq K$).	I

*Values in data statements.

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
WCACAS	Width of a normal combat area in which CAS interactions can take place in each sector.	I
WCOR(L) (2)	Width of penetration corridor for side L.	I
WDIV(IW,ID) (10,140)	Actual number of type IW weapons in division ID. (Entered for division ID if different from TOE number.)	I
WDRRP(IW,1,L) (10,1,2)	Number of type IW division weapons that have been damaged and recovered and are assumed repairable; by country (currently set to 1) and side L.	W
WFCNSA(L) (2)	Weighting factor for comparing nonsheltered aircraft with sheltered aircraft on side L.	I
WFCQRA(L) (2)	Weighting factor for comparing QRA aircraft with non-QRA aircraft on side L.	I
WFCRA(L) (2)	Weighting factor for comparing rear based aircraft with forward based aircraft on side L.	I
WFCZA(L) (2)	Weighting factor for comparing COMMZ based aircraft with forward based aircraft on side L.	I
WIDDR(L) (2)	Width (in km) of division in reserve for side L.	I
WIDS(IS) (8)	Width of sector IS.	W
WINDSP(KWS) (3)	Wind speed value (km/hr) of type KWS wind speed (see ECALFA).	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
WLCEP	CEP of the current chemical weapon system.	W
WLHOB	Height of burst for current chemical fire mission.	W
WLPDW	Particle diameter considered in current chemical fire mission.	W
WLPRS	Round-to-round dispersion considered in current chemical fire mission.	W
WLQAT	Chemical agent fill weight of current chemical fire mission.	W
WLSPR	Source length for current chemical fire mission.	W
WLSYS	Initial horizontal dispersion of current chemical weapon system.	W
WLSZS	Initial vertical dispersion of current chemical weapon system.	W
WLYLD(I,L) (100,2)	Yield of Ith weapon used on type target for side L.	W
WPNK(J,IS,L) (2,8,2)	Number of nuclear or chemical weapons (J = 1, missiles, J = 2, artillery) available to side L in sector IS.	W
WRPCZ(IW,1,L) (10,1,2)	Number of type IW weapons in the COMMZ weapon replacement pool for side L and by country (the country index is currently dimensioned to 1).	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
WSRTC(IWC,IWS,L) (3,4,2)	Weapon system response time (minutes) for the type IWC weapon category and the type IWS chemical weapon system for side L.	I
WSRTN(IWC,IWS,L) (3,5,2)	Weapon system response time (minutes) for the type IWC weapon category and the type IWS nuclear weapon system for side L	I
	$IWC = \begin{cases} 1, & \text{division} \\ 2, & \text{sector} \\ 3, & \text{theater.} \end{cases}$	
WTAFS(IS) (8)	Weighted number of aircraft on forward airbases in sector IS.	W
WTAGRC(ISUB,L) (4,2)	Weight of agent side L wants to fire at type ISUB region or COMMZ target.	I
WTAGTD(ITL,ISU,L) (2,7,2)	Weight of agent side L wants to fire at type ISU subunit in target location ITL. ITL = 1, on the line; 2, rear area.	I
WTARS(IS) (8)	Weighted number of aircraft on rear airbases in sector IS.	W
WTAZ	Weighted number of aircraft on COMMZ air bases.	W
WTCAST(L) (2)	Weighting value of aircraft to shelters used by side L for chemical attacks on specific air bases. If WTCAST(L) = X, then weighting value is AX + S(1-X) for aircraft A and shelters S.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
WTDCTR(IT,ICM,ITR) (10,3,2)	Width of type IT division by type ICM combat deployment and type ITR tactical role $\text{ICM} = \begin{cases} 1, & \text{nonnuclear} \\ 2, & \text{nuclear prepared} \\ 3, & \text{nuclear} \end{cases}$ $\text{ITR} = \begin{cases} 1, & \text{attack} \\ 2, & \text{defense.} \end{cases}$	I
WTNAST(L) (2)	Weighting value of number of aircraft to number of shelters used by side L when assigning aircraft to make a nuclear attack on a specific airbase (that is, if $\text{WTNAST}(L) = X$, then weighted sum of aircraft (A) and shelters (S) at a given airbase is $\text{WV} = \text{AX} + \text{S}(1-X)$.	I
WTTA	Weighted total number of tar- get aircraft.	W
WVDATS(IT) (10)	Weapons value for a type IT division on attack in sector.	W
WVDDTS(IT) (10)	Weapons value for a type IT division on defense in sector.	W
XAEF(IEAEF,L) (8,2)	See NEAEF(L)	I
XDEF(IEDEF,L) (8,2)	See NEDEF(L)	I
XFMF(IFMF) (8)	See NFMF	I
XIWY(IYLD,L) (42,2)	Field of the IYLDth nuclear weapon in the weapon list for side L.	W

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
XOCD	See NOCDAB	I
XOCDP	See NOCDPC	I
XODIST	See NODIST	I
XPCAF(IPCAF,L) (8,2)	See NPCAF(L)	I
XPCDF(IPCAF,L) (8,2)	See NPCDF(L)	I
XSEFF(ISEFF,L) (4,2)	See NSEFF(L)	I
YAEF(IEAEF,L) (8,2)	See NEAEF(L)	I
YDEF(IEDEF,L) (8,2)	See NEDEF(L)	I
YFMF(IFMK,KP,KT) (8,3,3)	See NFMF	I
YLDV(K,IWS,L) (3,4,2)	The Kth yield of side L type IWS division nuclear weapon system.	I
YLSW(K,IWS,L) (3,5,2)	The Kth yield of side L type IWS sector nuclear weapon system.	I
YLT(ISU,L) (7,2)	Yield preferred by side L to target and enemy type ISU subunit.	I
YLTDR(L) (2)	Yield preferred by side L to target subunits in rear area divisions.	I

<u>Variable Name and Size</u>	<u>Definition</u>	<u>Type</u>
YLTH(K,IWS,L) (3,5,2)	The Kth yield of side L type IWS theater nuclear weapon system.	I
YLTPA(L) (2)	Yield preferred by side L to target an enemy airbase parking area.	I
YLTRW(L) (2)	Yield preferred by side L to target an enemy airbase run- way.	I
YLTSN(L) (2)	Yield preferred by side L to target an enemy supply node.	I
YLTSSM(L) (2)	Yield preferred by side L to target an enemy surface-to- surface missile site.	I
YOCDP	See NOCDPC	I
YOCDPA	See NOCDAB	I
YOCDR	See NOCDAB	I
YODIST	See NODIST	I
YPCAF(KP,IPCAF,L) (3,8,2)	See NPCAF(L)	I
YPCDF(KP,PCDF,L) (3,8,2)	See NPCDF(L)	I
YSEFF(ISEFF,L) (4,2)	See NSEFF(L)	I

APPENDIX F
VARIABLES BY FUNCTION

APPENDIX F

Appendix F contains a list of input and summary output variables by submodel and function. All of these variables are contained in blank Common. An asterisk after a variable name indicates that the variable is a working variable.

Table 12. Input and Summary Output Working Variables
by Submodel and Function

1. Theater Structure Data

AKT	NBA
APT	NBNLT
BNDIS	SBNDLT
FEBA	NDFAB
FEBATZ	NDRAB
GDBA	NHSR
IABAS	NINTS
KPIS	NR
KPS*	NS
KPSY*	PDENS
KTER*	
KTERIS	
MFOPT	

2. Control Parameters

IOMU
IPRDO
IPRSO
IUTAM
IWIV
NCYCLE
NEPD

3. Supplies Model Data

Supply Node Data

DFASN	NSN
IOSN	SNLTLN
ISNABA	SQMPTS
MA	SUPASN*
NHSNS	SUPIN

Supplies Available

DSA	DSRNFS
DSCZBA	DSSNCZ
DSCZFS	DSSNFS
DSCZRS	DSSNRS
DSD	SABCZ
DSFNBA	SAGFS
DSRNBA	SABRS

Consumption

CRSAC
CSDP
CSDR
CTSCD*
PCSAB
PCSD

Miscellaneous

ARSS
ICASN*
NCSM
NSEFF
XSEFF
YSEFF

Supply Losses

CSDAW*
CSDFS*
CSDGW*

4. Ground Model Input Data

Division Characterisitcs

DEPDR	NDSAMS	RDSUR
FDDPTH	NSU	SDIV
FMNC	NSUTD	SHAFAC
FMXE	NTSUDT	TPD
FRDSUZ	NTWSU	TPSUTD
FSUAZ	NZ	TWD
IBALD	PDIV	TWSUTD
IDLABA	PWSF	WDIV
IDWTSU	PWSSMS	WIDDR
ITD	PZDPTH	WTDCTR

Operation Data

DDWDCD	ICMS
ERDWLE	ICPDHD
EWDRHE	ICSMA
FEAFBA	ISMAI
FEDW	ITA
FEISF	IUSFRC
FPSWDU	PICVDR
FRATA	SFRFE
FRATD	

Resources

MAD
MDDABA
ND
NDS
NT
NW
RPCZ
SSMSFS
SSMSRS
WRPCZ

Division Effectiveness

EFFDA*
EFFDD*
NEAEF
NEDEF
XAEF
XDEF
YAEF
YDEF

Weapon Value

EFCE
IWUCE
MNIE
SAWA
SAWD
VGABA*
VGDBA*
VIWAW
VIWDW

Movement

FMBP
FMDPT
NFMF
XFMF
YFMF

Casualties

CPLS*
FASFRC
FCHP
FCVLS
FDSFRC
NPCAF, XPCAF, YPCAF
NPCDF, XPCDF, YPCDF

Weapon Losses

CAKGS*
CGKGS*
CWLS*

Factors

AADFTD
FCABFD
FCDBFD
PWSSMS
RDSSMS
SLWCB

Repair Data

OCWRP
PWATS
PWDRP
PWNCTS
PWRCRP
WDRRP

Unit Arrivals

ICADTA
ICADTD
IMUTMF
IRADTA
IRADTD
NCOBAM

Identifiers

ADT
ASUT
AWT

5. Air Model Input Data

Aircraft Resources Air Base Data Repair Data Identifiers

ACCZ	FQRARS	AF	NOCDB	AMXRPL	AACT
ACFS	IQRAP	AMFAAB	XOCD	DAMPL	AAMT
ACRS	NAC	AMRAAB	YOCDBA	DLSMPL	ALRS
CAKNSF*	NAM	FOCRPC	YOCDR	DMSMPL	AMRS
CAKNSR*	NQRAT	IAFBA	PARKAB	DSSMPL	ASRS
CAKNSZ*	QRACZ	IMAGE*	PPNOTF	RRAPL	
CAKSHF*	QRAFS	IMAGE1*	PPNOTR	RRLSPL	
CAKSHR*	QRAK*	NAB	PPNOTZ	RRMSPL	
CAKSHZ*	QRARS	NOCDB	SACFRB	RRSSPL	
CQKNSF*	TQRA*	XOCDP	SACZB	SMXRPL	
CQKNSR*	VAABA*	YOCDB	SACZBK*		
CQKNSZ*	VADBA*		SAFRBK*		
CQKSHF*					
CQKSHR*					
CQKSHZ*					
DQRAF					
DQRAR					
DQRAZ					
FQRACZ					
FQRAFS					

Weapon Characteristics Munition Data Mission Assignments

ALTSAC	FCAIA	AMLFR	FAABAA	FABSUP
CRAC	IRAC	AMLFZ	FAABAD	FACASS
CRLRS	SLSCAS	AMNL	FAABAE	FACASA
CRMRS	SRACM	SAMA	FAABAS	FACASE
ESDASI	SRRAC	SAMD	FABDRF	FACASD
		VAMAW	FABDZF	FAINDA
		VAMDW	FABDZR	FAINDE
				FAINDS

SAM Resources Operations Mission Data

ALRSR	PSRSF	AEDGE	IPSQRA	ABATPS	FINDSS
ALRSZ	PSRSR	AEEGE	LXOPT	CLPABA	FINTRS
AMTLRS	PSRSZ	ANSLRS	PENCOR	EFFSHL	FSKSAK
AMTMRS	TLRSSC*	ANSMRS	RSAMS	EFAGT	IABAAG
AMTSTS	TMRSSC*	FASFRC	RSMIN	FABAFS	INTDA*
BMRS	TSRSSC*	FDSFRC	SNASBA	FABARS	INTDE*
CLRSDM*		FSSSMS	WCOR	FABASS	INTDS*
CMRSDM*		IPSHLA		FAGSCN	PABWR
				FAUSHL	PAJOR
				FCASRS	PIAIM
				FCASSS	PSJOR
					WCACAS

5. Air Model Input Data (Cont'd)

<u>Parameters and Factors</u>		<u>Probability of Detection</u>	
FAKRH	FSRCES	PDADDA	PDESAD
FAPKAD	FSRIES	PDANS	PDESBD
FAPKDA	FWDMAX	PDASFB	PDPSFB
FAPKED	PARHLS	PDASSS	PDPSSS
FKLAA	PARHMS	PDBBSS	PDSSAS
FKLASM	WFCNSA	PDBDEA	PDSSBS
FKLSMA	WFCQRA	PDBDFB	PDSSMS
FPKANS	WFCRA	PDBSFB	PDSSPS
FSRAES	WFCZA		PDSHL

Probability of Kill and Suppression

PKANS	PKLSA	PKSSMS
PKASD	PKMSA	PKSSSS
PKASSM	PKSSA	PSSSLs
PKDE	PKSSLS	PSSSMS
		PSSSSS

6. Chemical Model Input Data

<u>Weapon Characteristics</u>		<u>Weapon Location</u>
CEPCHD	HOBT	DPCHD
CEPCHS	IDSWTC	DPCHS
CEPCHT	ISSWTC	DPCHT
DISACW	ITSWTC	FDAGPS
EFWTD	MNDSFC	FSAGPS
EGWTS	MNSSFC	FTAGPS
EFWTT	MNTSFC	NPCHD
FDSWTC	RNGCHD	NPCHS
FSSWTC	RNGCHS	NPCHT
FTSWTC	RNGCHT	
HOBD	WSRTC	
HOBS		

<u>Identifiers</u>		<u>Weapon Inventory</u>	
ACHAT	ICMD	FADTMC	NDCWSI*
ACHDM	ICMPLX	FDCRAD	NSCRTP
AIWS	IKASC	FDCRAS	NSCWSI*
IACWTS	IMTYPE	FSCRAS	NTCRTP
ICHFAT	IPOPCH	NDCRPT	NTCWSI*

6. Chemical Model Input Data (Cont'd)

<u>Operations</u>	<u>Chemical Agent Data</u>		<u>Weapon System Data</u>	
FAGTOT	DICT50	PDWS	KCHATD	NCHTW
ICHST	DID50	PDWT	KCHATS	NDSMD
ICHTD	DIFCLA	RHO	KCHATT	NDSMS
INDC1	DLCT50	RPSICL	KDMSC	NDSMT
INDC2	DLD50	RPSIDL	KDSMD	SLNGTH
INDC3	ECALFA	RPSLCL	KDSMS	SYSD
INDC4	ECBETA	RPSLDL	KDSMT	SYSS
NDOBC7	FOAEVP	SATCON	KTYPWS	SYST
TDCWPT	KAGINO	SIGDL	NCHATD	SZSD
TDCWST	KAGPTO	SIGY1	NCHATS	SZSS
THQRAC	NINHAG	SYD100	NCHATT	SZST
THWPC	NPERAG	SZDSRD	NCHDW	
TMBOCW	PDWD		NCHSW	

Employment Data

CHDMDP	ICDLT
CHSMDP	IDLBC3
CHTMDP	IDLCC3
DPC2	IDLRC3
DPC7	IEML*
DPTHC2	IEMLC1
DPTHC3	IEMLC2
DPTHC7	NBC3
FRCMZC	NCRC4
FRMAXC	

Targeting Data

ACSABA*	NPT*
ICPRB	NVSD
ICPRCZ	NVSS
ICPRR	NVST
FRMSRC	SABAF*
IPTSUR	SINTDA*
KPRAG	WTACRC
KPRDM	WTAGTD
KTARAG	
KTARDM	

Employment Data

IALBTC	NCZC4
IALCTC	NRC3
IALRTC	PMCHC
ICDLB	PRTGTC
ICDLC	RFATCM
ICDLR	RMXCH
NCZC3	

Chemical Protection

DEGEFF
FPABCP
FPMSCP
FRCHGC
INDTPG
NTPP
PFAPOS

Parameters

ALTFAP
MAXKIA
NEML
WINDSP

Contamination

DCONEQ
DCONTD
DEPACC
DEPAWC

Civilians

CIVCCH*
CIVFCH*

7. Nuclear Model Input Data

<u>Resources</u>	<u>Weapon Characteristics</u>		<u>Location</u>
ANIWS	CEPD	MNFRS	FDSPOS
FADTMN	CEPS	MNFRT	FSSPOS
NDVNW	CEPT	RNGDW	FTSPOS
NSCNW	FDSWTN	RNGSW	NPOS
NTHNW	FSSWTN	RNGTW	NPOSS
NYLD	FTSWTN	WSRTN	NPOST
NYLS	IDLYLD		RDPLDV
NYLT	IDSWTN		RDPLSC
YLDV	ISSWTN		RDPLTH
YLSW	ITSWTN		
YLTH	MNFRD		

Operational Data

IDELTA	NNSC
IDSBDT	NR3
IDSBT5	THFR
IDSBT7	IPOPIN
IND1	ISLC1
IND2	ISLC2
IND3	THFRC
ITMPR	THQRAC
ITTPR	THWPC
NDOB7	

Nuclear Escalation

DP2	FRMAX
DP7	IALBT
DPTH2	IALCT
DPTH3	IALRT
DPTH7	ICMES
DVMNDP	IDEL2
IDELC3	IDELB3
IDELR3	NSBTT
NB3	PDMMX
NCZ3	PRTGTN
NESL	RFATNM
NSBDT	RMXDP
NSBTS	SCMNDP
FRCMZN	THMNDP

Targeting

ACSABA*	SABAF*
FODSUD	SINTDA*
IABTA	WTNA5T
IESC*	YLT
IPRI	YLTDR
IPREG	YLTPA
IPCMZ	YLTRW
IPTSUR	YLTSN
NSUB	YLTSSM
NTYP	

Assessments

NODIST	RDCFA
XODIST	RDCFS
YODIST	RDEXPA
RADBPT	RDEXPS
RDBPTA	RDSIGA
RDBPTS	RDSIGS

Protection

FCPPC
FPAFPC
FPSSPC
FRSPCR
FRSUPC
TRGM
TRNT

7. Nuclear Model Input Data (Cont'd)

Vulnerability

IVNAF
IVNSP
IVNSSM
IVNW

Civilians

CIVCNU*
CIVFNU*
FPKC*

Weapon Inventory

FDWALD
FDWALS
FSWAS
NDWHD*
NDWHS*
NDWHT
NDWSI*
NSWHS*
NSWHT
NSWSI*
NTWHT
NTWSI*

8. Target Acquisition Model Input Data

Resources

AACS NAS
FAACTD NGS
FGSTD RACCZ
FRAACI RACFS
FRACIO RACRS
NAAC TAACND
NAFS TGSND

Operational Data

ALTAAS FDWLRA
ALTAFS GLPAFS
ALTGS GLPAS
AMOAAC GLPGS
AMORAC NRBST
DACFT PAACAM
DGSFT PAACSM
DRAFT PAFRAM
FACPDS PRAFSM
FDWLAC

Identifiers

AAACT IAFSV
AAFCT IEQCS
AAFS IGSV
AAST ITAAS
AGST ITAFS
IAASV

Attrition

FRLPMA
RAACM
RAAFRM

Error Data

SEAADA
SEAFDA
TACAFR
TACASR
TACGST
VHRBST

Detection

PDDRA
RAASDT
RAFSDT
RGSdT
SWAFDS
SWASDS

Factors

FPDRST
TAASSD
TAFSSD
VELAAC
VELRAC

Data Statements

CEITWZ
IWZBA
KTERTA
RVLOST
VISTWZ

Optional: Nonuse of Model

PSRADS
PSZD
TADTSZ
TASESZ

8. Target Acquisition Model Input Data

Time Delay

TADTAF
TADTAS
TADTGS

APPENDIX G

CROSS-REFERENCE TABLE OF COMMON VARIABLES
AND SUBROUTINES THAT USE OR MODIFY THEM

APPENDIX G

This appendix contains four tables, each of which cross-references all the Common variables to a set of TACWAR subroutines. Figure 13 covers the root programs and the three links for TZERO, WTZERO, and AIRMOD. Figures 14 and 15 cover the nuclear and chemical links, respectively. Figure 16 covers the links for TARACQ, GROUND, AIRGRD, PSAIR, TC, SUPPLY, TIMET, and PSUMMY. The following symbols are used in the tables:

X = Variable is referenced by subroutine

O = Variable is modified by subroutine

[illegible]

Table 13. (Part 2 of 31)

[illegible]

Table 31. (Part 3 of 31)

[illegible]

Table 13. (Part 4 of 31)

[illegible]

Table 13. (Part 5 of 31)

VARIABLE NAME	SUBROUTINES																																	
	MAIN	EIGEN	VRAD	CTNYC	CPW	SECUT	GOIST	TAG	APORTN	CLN	ZERO	INP	TCTZ	WTZERO	SCOUT	TCOUT	SPLTOT	WTONE	WTCOUT	WTCOUT	TACOUT	APMOD	BINAC	BINAC	ATRTS	ATRTS	ATRTS	ATRTS	ATRTS	ATRTS	ATRTS	ATRTS	ATRTS	ATRTS
CUKNSR																																		
COKNSZ																																		
COKSHF																																		
COKSHR																																		
COKSHZ																																		
CRAC																																		
CRAC																																		
CRLOS																																		
CRMS																																		
CRSAC																																		
CSARAF																																		
CSARAR																																		
CSARAZ																																		
CSASAS																																		
CSDAW																																		
CSDFB																																		
CSGWH																																		
CSIDP																																		
CSIDR																																		
CSINDA																																		
CSISDM																																		
CTSCD																																		
CWLS																																		
DACFT																																		
DAMFL																																		
DCONEQ																																		
DCONID																																		
DOWDCD																																		
DEGEFF																																		
DEPACC																																		

Table 13. (Part 6 of 31)

[illegible]

[illegible]

Table 13. (Part 8 of 31)

VARIABLE NAME	SUBROUTINES																														
FAARF																															
FAARR																															
FAARZ																															
FAAZF																															
FAAZR																															
FAAZZ																															
FAABA																															
FAABD																															
FAABE																															
FAABAS																															
FAACTD																															
FAABES																															
FAABRS																															
FABAS																															
FAADRF																															
FAADZF																															
FAADZR																															
FAASUP																															
FACASA																															
FACASD																															
FACASE																															
FACASS																															
FACIDE																															
FACIDS																															
FADTMC																															
FADTUM																															
FAGSCH																															
FAGTOT																															
FAIHDA																															
FAIHDE																															

Table 13. (Part 9 of 31)

[illegible]

Table 13. (Part 10 of 31)

[illegible]

Table 13. (Part 11 of 31)

[illegible]

Table 13. (Part 12 of 31)

[illegible]

Table 13. (Part 13 of 31)

[illegible]

Table 13. (Part 14 of 31)

[illegible]

Table 13. (Part 15 of 31)

[illegible]

Table 13. (Part 16 of 31)

VARIABLE NAME	SUBROUTINES																															
	MAIN	EIGEN	MPROD	CMTRAC	CMFAC	SECNT	GOIST	TAG	APORTN	CLR	IZENO	IMP	TGT2	WZENO	GCOUT	TCOUT	SPYOT	WONE	NUGOUT	CHOUT	TACOUT	ANMOD	BINAC	BINAT	ATSSS	ATRED	ATRTA	ATRTA	ATRTA	ATRTA	ATRTA	ATRTA
IPSHA																																
IPSONA																																
IPTSUR																																
IORAP																																
IRAC																																
IRADIA																																
IRADTD																																
IRSR																																
ISA																																
ISCEE																																
ISCL1																																
ISCL2																																
ISMA																																
ISMAI																																
ISNABA																																
ISNBA																																
ISSWTC																																
ISSWTC																																
ISSWTC																																
ISTAT																																
ITA																																
ITAAS																																
ITAFS																																
ITD																																
ITMFA																																
ITSWTC																																
ITSWTC																																
ITTD																																
ITTPR																																
INSERC																																
INTAM																																

[illegible]

Table 13. (Part 18 of 31)

VARIABLE NAME	SUBROUTINES																																													
	TRAIN	EIGEN	MPROD	CNTAFC	CYFC	SECYTH	GDIST	TAG	APORTN	CLR	ZERO	IMP	TCTZ	WZERO	GCOUT	TCOUT	SPLYOT	WTONE	NUCOUT	CHOUT	TACOUT	AIRMOD	BINFAC	BINFAC	BINFAC	ATSSS	ATSTED	ATSTDA	ATSTSA	ATSTSS	ALLOCT	DEG	AIRATT	AOVL	ATRI	AOVL2	ATTR2	ATTR3	ATTR4	ATTR5	ATTR6	ATTR7				
KTARAG																																														
KTARUM																																														
KTER																																														
KTERIS																																														
KTERIA																																														
KTYPS																																														
LXOPT																																														
MAD																																														
MAXKIA																																														
MFOPT																																														
MNDSEC																																														
MNFRD																																														
MNFRS																																														
MNFRY																																														
MNIE																																														
MNSSF																																														
MNLSUB																																														
MNTSEC																																														
NAAC																																														
NAB																																														
NAC																																														
NAFS																																														
NAM																																														
NAS																																														
NB3																																														
NBA																																														
NBC3																																														
NBNLT																																														
NBCB4																																														
NCRB4																																														
NCRB4																																														

Table 13. (Part 19 of 31)

VARIABLE NAME	SUBROUTINES																																												
	TRAIN	EIGEN	MPROD	CNTRVC	CNTRW	SECMH	GOIST	TAG	APORTN	CLR	TZERO	INF	TCTZ	WTZERO	GCOUT	TCOUT	SPYOT	WTONE	NUCOUT	CHOUT	TACOUT	AIRMOD	BINFAC	BINFAC	ATSMAS	ATSTED	ATSTDA	ATSTSS	ALLOCT	DEG	AIRATT	AOULI	ATRI	AOUL2	ATRA2	ATRA3	ATRA4	ATRA5	ATRA6	ATRA7					
NCHAD																																													
NCHATS																																													
NCHATT																																													
NCHDW																																													
NCHSW																																													
NCHTW																																													
NCOBAM																																													
NCRCA																																													
NCRNA																																													
NCSW																																													
NCSWABA																																													
NCSWZ																																													
NCSWREG																																													
NCYCLE																																													
NCZ3																																													
NCZC3																																													
NCZC4																																													
NCZNA																																													
ND																																													
NDCRDP																																													
NDCRSP																																													
NDCRTP																																													
NDCWSI																																													
NDFA8																																													
NDIBA																																													
NDIB7																																													
NDOSC7																																													
NDRAB																																													
NDS																																													
NDSAMS																																													

SUBROUTINES

Table 13. (Part 21 of 31)

VARIABLE NAME	SURROUTINES																																										
	MAIN	EIGENV	MPROD	CNTRVC	SECMTH	GOIST	TAG	APORTN	CLR	TZERO	INP	TC12	WTZERO	GCOUT	TCOUT	SALVOT	WTOVE	WTCOUT	TACOUT	ALRMOD	BINAC	BINCAT	ATSSS	ATRTSO	ATRTSA	ATRTSD	ALLOCT	DEG	AIRATT	AOVL1	AOVL2	ATTR1	ATTR2	ATTR3	ATTR4	ATTR5	ATTR6	ATTR7					
NPOSD																																											
NPOST																																											
NORAT																																											
NR																																											
NR3																																											
NRC3																																											
NS																																											
NSBD																																											
NSBD																																											
NSBIT																																											
NSBIT																																											
NSBIT																																											
NSCINW																																											
NSCINP																																											
NSCRSP																																											
NSCRTP																																											
NSCWSI																																											
NSEFF																																											
NSN																																											
NST																																											
NSU																																											
NSUB																																											
NSUD																																											
NSWHS																																											
NSWHT																																											
NSWSI																																											
NT																																											
NTCRTP																																											
NTCWSI																																											
NTNHW																											</																

Table 13. (Part 22 of 31)

[illegible]

Table 13. (Part 23 of 31)

[illegible]

Table 13. (Part 24 of 31)

[illegible]

[illegible]

Table 13. (Part 26 of 31)

[illegible]

Table 13. (Part 27 of 31)

[illegible]

Table 13. (Part 28 of 31)

[illegible]

Table 13. (Part 29 of 31)

VARIABLE NAME	SUBROUTINES																																																
	MAIN	EIGEN	MPROD	CNTRVC	CEW	SECTH	GOIST	TAG	ARORTN	CLN	TZER	INF	TGTZ	WTZER	GCOUT	TCOUT	SPLYOT	WTONE	YCOUT	CHOUT	TACOUT	AIMMOD	BIMAC	BIMAT	ATSPS	ATATED	ATATSA	ATATDA	ATATSS	ALLOCT	DEG	AIMATT	AOVL	AOVL	AOVL2	ATT3	ATT4	ATT5	ATT6	ATTM									
FLRSSC																																																	
THBKW																																																	
THRSSC																																																	
THOMP																																																	
TPD																																																	
TPSUD																																																	
TORA																																																	
TRGM																																																	
TRNT																																																	
TSRSSC																																																	
TTIRD																																																	
TWO																																																	
TWSUD																																																	
VAABA																																																	
VADBA																																																	
VAMAW																																																	
VAMDW																																																	
VELAAG																																																	
VELRAC																																																	
VGABA																																																	
VGDBA																																																	
VHRST																																																	
VIAASF																																																	
VIAJSE																																																	
VISTWZ																																																	
VIVASF																																																	

Table 13. (Part 30 of 31)

[illegible]

Table 13. (Part 31 of 31)

VARIABLE NAME	SUBROUTINES																																											
	TRAIN	EIGEN	MPROD	CNTNVC	CURM	SECMTH	GOSTH	TAG	APORTN	CLN	TZERO	INP	TCT?	WTZERO	GCOUT	TCOUT	SPL YOT	WTONE	NUCOUT	CHCOUT	TACOUT	AIMOD	BINFAC	BINFAC	ATSSS	ATRTSD	ATRTSD	ATRTSD	ALLOCT	DEG	APRATT	AOVL1	ATRT1	AOVL2	ATRT2	ATRT3	ATRT4	ATRT5	ATRT6	ATRTWH				
YAEF																																												
YDEF																																												
YFMF																																												
YLDV																																												
YLSW																																												
YLT																																												
YLTDR																																												
YLIH																																												
YLTFA																																												
YLTWH																																												
YLTSH																																												
YLTSM																																												
YOCUP																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												
YOCDA																																												

Cross-References Tables for Nuclear
Combat Model Routines (Part 1 of 31)

[illegible]

Table 14. (Part 2 of 31)

VARIABLE NAME	SUBROUTINES																								
	NUC	BLKDA	KDGEN	KDGEN	NUC	ESCLAT	WHINUP	NDSYN	NUC2	NUCTAR	NUCWS	NMWINV	NUC3	NUC4	NUC5	ZNOST	NUCABS	NBFTGS	NRGTGS	NC2TGS	PREYLO	DMWINV	NMWINV	NUC6	DAMEVL
ALTGS																									
ANFAAB																									
ANLFD																									
ANLFR																									
ANLFZ																									
ANLNL																									
ANOAAC																									
ANDRAC																									
ANRAAB																									
ANRAB																									
ANTEMP																									
ANTLSE																									
ANTMRS																									
ANTSRB																									
ANXRPL																									
ANWIC																									
ANWIS																									
ANSLRB																									
ANSMRS																									
APT																									
ARSS																									
ASRS																									
ASUT																									
AWT																									
BMRS																									
BNDS																									
CAATSK																									
CAARSK																									
CAAZSK																									
CACOF																									

VARIABLE NAME	SUBROUTINES
LACUR	
LACUZ	
CADAM	
CADFSK	
CADRSK	
CADZSK	
CAEFSK	
CAERSK	
CAEZSK	
CAKGS	
CAKNSE	
CAKNRZ	
CAKNSZ	
CAKSHE	
CAKSHR	
CAKBIZ	
CALSRK	
CALSZK	
CAREPD	
CARQLY	
CARPSK	
CARRSK	
CARSIM	
PARDZK	
CBRSK	
CBREFK	
CCACKS	
CCOCSK	
CELSRK	

Table 14. (Part 4 of 31)

[illegible]

Table 14. (Part 5 of 31)

VARIABLE NAME	SUBROUTINES																			
	UUC	ELKDA	FCDEN	FCDEN	UUC1	ESCLAT	MINUP	WSSVNV	UUC2	WUCTAR	WUCWMS	WUMINV	UUC3	WUC4	WUC5	WUC6	WUC7	WUCABS	WUCFTGS	WUCFTGS
CUKNSD																				
COKNSZ																				
COKSHF																				
COKSHR																				
COKSHZ																				
CRAC																				
CHAK																				
GRILRS																				
CRMRS																				
CRBAC																				
CSABAF																				
CSABAR																				
CSABAZ																				
CSACASA																				
CSOAW																				
CSUES																				
CSUGW																				
CSOP																				
CSOR																				
CSINDA																				
CSISDM																				
CTED																				
CHLL																				
DACET																				
DAMP																				
DCONEQ																				
DCONTD																				
DOWDCD																				
DEGEFF																				
DEZACC																				

Table 14. (Part 6 of 31)

VARIABLE NAME	SUBROUTINES																																
	VIC	BLKOA	KCOEN	KCOEN	ESCLAT	AMHNUB	NDOSVNV	NUC2	NUCTAR	NUCHPS	NUCHNV	NUC3	NUC4	NUC5	210ST	NUCABS	NBFTS5	WROT55	WCTGS	PREYLO	DMHNV	NUCHNV	NUC8	DAMEVL	PAMEA	PREEN	2714P	USSTLM	WBAO	WBAOVN	WBAOV	WBAOV	WBAOV
DEPAWL																																	
DEPDR																																	
DEASN																																	
DGSFL																																	
DICT50																																	
DID50																																	
DIFCLA																																	
DISAGW																																	
DLC150																																	
DLD50																																	
DLSMPL																																	
DNSMPL																																	
DP2																																	
DP7																																	
DPC2																																	
DPC7																																	
DPCHD																																	
DPCHS																																	
DPCHT																																	
DPTH2																																	
DPTH3																																	
DPTH7																																	
DPTHC2																																	
DPTHC3																																	
DPTHC7																																	
DDRAE																																	
DDRAE																																	
DDRAZ																																	
DDRAZ																																	
DRAFT																																	
DSA																																	

Table 14. (Part 7 of 31)

[illegible]

Table 14. (Part 8 of 31)

[illegible]

Table 14. (Part 9 of 31)

[illegible]

Table 14. (Part 10 of 31)

VARIABLE NAME	SUBROUTINES																																					
	NUC	BLKDA	KODEN	KODEN	NUC1	ESCLAT	WHINUP	NOSYINV	NUC2	NUCTAR	NUCWPS	NWMINV	NUC3	NUC4	NUC5	ZNDST	NUCABS	NBETOS	NBETOS	NCTOS	PREYLO	DWMINV	NWMINV	NUC6	DAMEVL	PAREL	FN	PREFN	OKINR	DOSTIM	WRAD	WRADV	OFFCOV	SIMCN	SIRCOV	CIRCOV		
FEBATZ																																						
FEDW																																						
FEISF																																						
FGSTD																																						
FINDSR																																						
FINTNS																																						
FKLAA																																						
FKLASH																																						
FKLSMA																																						
FMBP																																						
FMDPT																																						
FMMC																																						
FMXE																																						
FOAEVP																																						
FOCRPC																																						
FODRUD																																						
FPACDP																																						
FPAEPC																																						
EPDCAS																																						
EPDRTS																																						
EPHRC																																						
EPHSDP																																						
FPRC																																						
FFSDU																																						
FORACZ																																						
FORAFS																																						
FORARS																																						
FRAACI																																						
FRAACI																																						

Table 14. (Part 11 of 31)

[illegible]

Table 14. (Part 12 of 31)

VARIABLE NAME	SUBROUTINES																																
	NUC	BLKDA	KDCEN	KDCEN	NUC1	ESCLAT	WHINUP	NUC2	NUCTAR	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS	NUCARS
FTSWTC																																	
ETSMIN																																	
FWDCAS																																	
FWDMAX																																	
GDBA																																	
GLPACS																																	
GLPAS																																	
GLPGS																																	
HUBH																																	
HUBS																																	
HUBT																																	
IAASV																																	
IABAG																																	
IABAS																																	
IABIA																																	
IACTWS																																	
IAEBA																																	
IAFV																																	
IALBT																																	
IALBTC																																	
IALCT																																	
IALCTC																																	
IALBT																																	
IALBTC																																	
IALD																																	
ICALTA																																	
ICADIA																																	
ICADTD																																	
ICASH																																	
ICLR																																	

Table 14. (Part 13 of 31)

VARIABLE NAME	SUBROUTINES																																
	NUC	BLDA	KODEV	KODEN	NUCI	ESCLAT	WHINUP	NDSYN	NUC2	NUCTAR	NUCMBS	NMHN	NUC3	NUCA	NUCS	ZNUST	NUCA93	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS	VPATOS
ICDLC																																	
ICDLR																																	
ICDLT																																	
ICH																																	
ICHAT																																	
ICHST																																	
ICHID																																	
ICMD																																	
ICMES																																	
ICMPX																																	
ICMS																																	
ICNST																																	
ICPDHD																																	
ICZBB																																	
ICPRZ																																	
ICPRR																																	
ICSM																																	
ICSWA																																	
ICYCLE	X																																
IDEL2						X																											
IDELB3						X																											
IDELC3						X																											
IDELR3						X																											
IDELTA																																	
IDLARA																																	
IDLBC3																																	
IDLC3																																	
IDLIBA																																	
IDLR3																																	

Table 14. (Part 14 of 31)

VARIABLE NAME	SUBROUTINES																																	
	NUC	BLKDA	KCODEN	KCOEN	NUC1	ESCLAT	WHINUP	NDSYINP	NUC2	NUCTAR	NUCMPS	NWMINV	NUC3	NUC4	NUC5	NUC6	NUC7	NUC8	NUC9	NUC10	NUC11	NUC12	NUC13	NUC14	NUC15	NUC16	NUC17	NUC18	NUC19	NUC20	NUC21	NUC22	NUC23	NUC24
IPLYD																																		
IDS8TD																																		
IDS8TS																																		
IDS8TT																																		
IDS8TC																																		
IDS8TN																																		
IDWTSU																																		
TEML																																		
TEMLC1																																		
TEMLC2																																		
TEGGS																																		
TESC																																		
IFULL																																		
IGO																																		
IGSV																																		
IKASC																																		
IMAGE1																																		
IMAGE																																		
INTYPE																																		
IMUTMF																																		
INCYL																																		
IND1																																		
IND2																																		
IND3																																		
IND4																																		
INDC1																																		
INDC2																																		
INDC3																																		
INDC4																																		
INDLB																																		

Table 14. (Part 15 of 31)

VARIABLE NAME	SUBROUTINES																																			
	NUC	BLKDA	KODEN	KODEN	NUC1	ESCLAT	WHINUP	NDSYNU	NUC2	NUCTAR	NUCWP	NHMINV	NUC3	NUC4	NUC5	ZNUST	NUCAR5	NBTGS	NRTGS	PREYLD	DHMINV	NHMINV	NUC6	DAREVL	PAREVL	FN	PREN	ORINR	DOSLIN	WRAD	WRADV	DEFCON	SIMCN	SIRCOV	CRACO	
INDLC																																				
INDLR																																				
INDTPG																																				
INO																																				
INTAGT																																				
INTDA																																				
INTDAA																																				
INTDAD																																				
INTDAH																																				
INTDAK																																				
INTDE																																				
INTDEA																																				
INTDED																																				
INTDEH																																				
INTDEK																																				
INTDM																																				
INTDS																																				
INTDSA																																				
INTDSO																																				
INTDSH																																				
INTDSK																																				
INTRVL																																				
IOU																																				
IOSH																																				
IOSHNS																																				
IPCBLZ																																				
IPOTCH																																				
IPORIN																																				
IPRD																																				
IPRDO																																				

Table 14. (Part 16 of 31)

VARIABLE NAME	SUBROUTINES																																	
	NUC	BLKOA	KODEN	KODEN	NUCL	ESCLAT	WINUP	NUC2	NUCTAR	NUCWS	NUWINV	NUCA	NUC3	NUC4	NUC5	NUC6	NUC7	NUC8	NUC9	NUC10	NUC11	NUC12	NUC13	NUC14	NUC15	NUC16	NUC17	NUC18	NUC19	NUC20	NUC21	NUC22	NUC23	NUC24
IPREG																																		
IPRI																																		
IPRS																																		
IPRSO																																		
IPSHLA																																		
IPSORA																																		
IP																																		
IPISUR																																		
IPRAP																																		
IRAC																																		
IRADTA																																		
IRADTD																																		
IRSW																																		
ISA																																		
ISCEF																																		
ISCL1																																		
ISCL2																																		
ISMA																																		
ISMAI																																		
ISNABA																																		
ISNBA																																		
ISSWTC																																		
ISSWTN																																		
ISTAT																																		
ITA																																		
ITAAS																																		
ITAFS																																		
ITD																																		
ITM																																		
ITMPR																																		

Table 14. (Part 17 of 31)

VARIABLE NAME	NUC	BLA	KODEN	NUC1	ESCLAT	WHINUP	NDSYNY	NUC2	NUCTAR	NUCWS	NHINIV	NUC3	NUC4	NUC5	ZNDST	NUC6AS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCTOS	NUCT
---------------	-----	-----	-------	------	--------	--------	--------	------	--------	-------	--------	------	------	------	-------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	------

Table 14. (Part 18 of 31)

VARIABLE NAME	SUBROUTINES																																
	NUC	ALPHA	KCDEN	KCDEN	NUC1	ESCLAT	WHINUP	NDSPIN	NUC2	NUCTAR	NUCMPS	NUCMIN	NUC3	NUC4	NUC5	ZNDST	NUCABS	NUCFTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	NUCOTGS	
KISS																																	
KPIAG																																	
KPRDM																																	
KPS																																	
KPSY																																	
KIARAG																																	
KIAROM																																	
KIER																																	
KIERIS																																	
KIERIA																																	
KIYDS																																	
LXOPT																																	
MAD																																	
MAXXIA																																	
MCF																																	
MEOPT																																	
MINOSFC																																	
MINERT																																	
MINERS																																	
MINERT																																	
MINIE																																	
MINSSFC																																	
MINSUBR																																	
MINTSFC																																	
MOT																																	
NAAC																																	
NAB																																	
NAC																																	
NAFS																																	
NAM																																	

Table 14. (Part 19 of 31)

VARIABLE NAME	SUBROUTINES																												
	NIC	BLDCA	KCCEN	KCCEN	ESCLAT	MINHUB	NSCIN	NUC2	NUC2A	NUC2B	NUC2C	NUC2D	NUC2E	NUC2F	NUC2G	NUC2H	NUC2I	NUC2J	NUC2K	NUC2L	NUC2M	NUC2N	NUC2O	NUC2P	NUC2Q	NUC2R	NUC2S	NUC2T	NUC2U
NAS																													
NB3																													
TBA																													
NBC3																													
NBNLT																													
NBCB4																													
NBN4																													
NCHATS																													
NCHATT																													
NCHDW																													
NCHSW																													
NCHTW																													
NCOBAM																													
NCRCA																													
NCRN4																													
NCSM																													
NOWABA																													
NOWCZ																													
NOWREG																													
NCYCLE																													
NCZ3																													
NCZC3																													
NCZC4																													
NCZN4																													
NO																													
NOCROP																													
NOCRSP																													
NOCRTIP																													
NOWB2																													

Table 14. (part 20 of 31)

[illegible]

Table 14. (Part 21 of 31)

[illegible]

Table 14. (Part 22 of 31)

[illegible]

Table 14. (Part 23 of 31)

VARIABLE NAME	SUBROUTINES																																
	NUC	BL7A	KCCY	KCCN	NUC1	ESCLAT	WNNIB	NDVINY	NUC2	NUCTA	NUCAP	WNNIN	NUC3	NUC4	NUC5	ZUOST	NUC6	NUC7	NUC8	NUC9	NUC10	NUC11	NUC12	NUC13	NUC14	NUC15	NUC16	NUC17	NUC18	NUC19	NUC20	NUC21	NUC22
PCSD																																	
PDADDA																																	
PDANS																																	
PDASF8																																	
PDASS																																	
PDBSS																																	
PDBDEA																																	
PDBDF8																																	
PDBSF8																																	
PDDRA																																	
PDENS																																	
PDESAD																																	
PDERSD																																	
PDIV																																	
PDMMX																																	
PDPSF8																																	
PDSSS																																	
PDSHL																																	
PDSSAS																																	
PDSSBS																																	
PDSSMS																																	
PDSSPS																																	
PDWD																																	
PDWS																																	
PDWT																																	
PENCOR																																	
PIAFOS																																	
PIAIM																																	
PICVDR																																	
PIANSO																																	

Table 14. (Part 24 of 31)

VARIABLE NAME	SUBROUTINES																							
	NUC	BLKDA	KODEN	KODEN	NUC1	ESCLAT	WHINUP	NOSYNY	NUC2	NUCTAR	NUCWPS	NMWHNV	NUC3	NUC4	NUC5	ZNOST	NUCABS	NBFTGS	NBFTGS	NBFTGS	PREYLD	DMWHNV	NMWHNV	NUC6
PKANSD																								
PKASD																								
PKASDH																								
PKDE																								
PKLSA																								
PKMBA																								
PKSSA																								
PKSBL																								
PKSSDH																								
PKSSS																								
PKMHC																								
PKNOTE																								
PKNOIR																								
PKNOIZ																								
PKAFSH																								
PKTGTG																								
PKTGIN																								
PKOUR																								
PKADPS																								
PKRE																								
PKRIR																								
PKRIZ																								
PKSBL																								
PKSME																								
PKSSS																								
PKSD																								
PKSDPS																								
PKWS																								
PKATE																								
PKDRP																								
PKNCTA																								

Table 14. (Part 25 of 31)

[illegible]

Table 14. (Part 26 of 31)

VARIABLE NAME	SUBROUTINES																																
	NUC BLKDA	KCDEN	KCDEN	NUCI	ESCLAT	WHINUP	NDSTINY	NUC2	NUCTAR	NUCOWPS	NUWHIN	NUC3	NUC4	NUC5	2NDST	NUCABS	NUF1GS	NUF2GS	NUF3GS	NUF4GS	NUF5GS	NUF6GS	NUF7GS	NUF8GS	NUF9GS	NUF10GS	NUF11GS	NUF12GS	NUF13GS	NUF14GS	NUF15GS		
RDSUR																																	
REFATCM																																	
REFATNM																																	
RGSDT																																	
RHO																																	
RMXCH																																	
RMXOP																																	
RINGCHD																																	
RINGCHS																																	
RINGCHT																																	
RINGCHW																																	
RINGDW																																	
RINGSW																																	
RINGTW																																	
RPCZ																																	
RPSICL																																	
RPSIDL																																	
RPSLCL																																	
RPSLDL																																	
RRAPL																																	
RRLSPL																																	
RRLSPL																																	
RRLSPL																																	
RSAMS																																	
RSARH																																	
RVLOST																																	
SABAF																																	
SABAR																																	
SABAZ																																	
SABCZ																																	
SABFS																																	

Table 14. (Part 27 of 31)

[illegible]

Table 14. (Part 28 of 31)

VARIABLE NAME	NUC	BLKDA	KCOEN	KCOEN	NUC1	ESCLAT	WHINUP	NDVYIN	NUC2	NUCTAR	NUCMPS	NMWINV	NUC3	NUC4	NUC5	ZNDST	NUCABS	NBFTGS	NRTGS	PREYLD	DMWINV	NMWINV	NUC6	DAMEVL	FN	PREFN	OKINR	DOSLIM	WRAD	WRADN	OFFCOV	SIMCN	SIRCOV	CIRCOV
SSMSRS																																		
SUPASN																																		
SUPIN																																		
SWAFDS																																		
SWASDS																																		
SYD100																																		
SYSD																																		
SYSS																																		
SYST																																		
SZDSRD																																		
SZSD																																		
SZSS																																		
SZST																																		
TACND																																		
TACSD																																		
TACAFR																																		
TACASR																																		
TACGR																																		
TADSR																																		
TADSD																																		
TADTAF																																		
TADTAS																																		
TADTGS																																		
TADTSZ																																		
TAEBSA																																		
TAESD																																		
TAFSA																																		
TASEZ																																		
TCHFT																																		
TDCWST																																		

Table 14. (Part 29 of 31)

VARIABLE NAME	SUBROUTINES																																
	NUC	BLKDA	KDGN	KDGN	NUC1	ESCLAT	WHINUP	NSYNY	NUCTAR	NUCWS	NUHNV	NUC3	NUC4	NUC5	ZNUST	NUCABS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS		
TGSND																																	
THFR																																	
THFRG																																	
THMNDP																																	
THORAC																																	
THWPC																																	
TLRSSC																																	
TMBOCW																																	
TMRSSC																																	
TINOWP																																	
TPO																																	
TPSUTD																																	
TORA																																	
TRGM																																	
TRNT																																	
TSRSSC																																	
TTIRD																																	
TWD																																	
TWSUTD																																	
VAABA																																	
VADBA																																	
VAMAW																																	
VANDW																																	
VELAAC																																	
VELRAC																																	
VGABA																																	
VGDBA																																	
VHREB																																	
VIAASF																																	
VIADEF																																	

Table 14. (Part 30 of 31)

VARIABLE NAME	SUBROUTINES																												
	NUC	BLKDA	KODEN	KODEN	NUC	ESCLAT	WHINUP	NUC2	NUCTAR	NUCWS	NUWHIN	NUC3	NUCA	NUCS	ZNUST	NUCABS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS	NUCTGS
VISFWZ																													
VIVASF																													
VIVAW																													
VIVDSF																													
VIVDW																													
WCACAS																													
WCOR																													
WDIV																													
WDRRP																													
WFCNSA																													
WFCORA																													
WFCRA																													
WFCZA																													
WDDR																													
WIDS																													
WINDSP																													
WPNK																													
WRPCZ																													
WSRTC																													
WSRTN																													
WTAGRC																													
WTAGTD																													
WTCAST																													
WTDCTR																													
WTNAST																													
WVDATS																													
WVDDTS																													
XAEF																													

Table 14. (Part 31 of 31)

VARIABLE NAME	SUBROUTINES																																
XDEF																																	
XTMF																																	
XUCD																																	
XOCDP																																	
XODIST																																	
XPLAF																																	
XPLDF																																	
XSEFF																																	
YAEF																																	
YDEF																																	
YFMF																																	
YLDV																																	
YLSW																																	
YLT																																	
YLTDR																																	
YLTH																																	
YLTPA																																	
YLTRW																																	
YLTSM																																	
YLTSSM																																	
YODP																																	
YODPA																																	
YODPPR																																	
YODDR																																	
YODIST																																	
YPCAF																																	
YPCDF																																	
YSEFF																																	

Table 15. Cross-reference Tables for Chemical Combat Model Routines
(Part 1 of 31)

VARIABLE NAME	SUBROUTINES																																
AACT																																	
AACDS																																	
AACS																																	
AAGT																																	
AAFT																																	
AATF																																	
AAWT																																	
AAST																																	
ABASEF																																	
ABASER																																	
ABASEZ																																	
ABATPS																																	
ACCC																																	
ACFZ																																	
ACHAT																																	
ACHDM																																	
ACRS																																	
ACSABA																																	
ADT																																	
AEDGE																																	
AEEGE																																	
AF																																	
AGST																																	
AIWS																																	
AKT																																	
ALRS																																	
ALRSR																																	
ALRSZ																																	
ALTAAS																																	
ALTAFS																																	

Table 15. (Part 2 of 31)

VARIABLE NAME	SUBROUTINES																								
ALTAP																									
ALTOS																									
AMFAAB																									
AMLFD																									
AMLFR																									
AMLFZ																									
AMNL																									
AMOAAC																									
AMORAC																									
AMFAAB																									
AMRS																									
AMTEMP																									
AMTLRS																									
AMTMR																									
AMTMR																									
AMXPL																									
AMWC																									
AMWS																									
ANLRS																									
ANSMTS																									
AFT																									
ARSS																									
ASRS																									
ASUT																									
AWT																									
BHRS																									
BNDIS																									
CAAFSK																									
CAAFSK																									
CAAZSK																									

Table 15. (Part 3 of 31)

VARIABLE NAME	SUBROUTINES																								
	CHEP	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE
CACOF																									
CACOR																									
CACQZ																									
CADAM																									
CADFSK																									
CADRSK																									
CADZSK																									
CAEFSK																									
CAERSK																									
CAEZSK																									
CAKGS																									
CAKNSF																									
CAKNSR																									
CAKNSZ																									
CAKSHF																									
CAKSHR																									
CAKSHZ																									
CALSRK																									
CALSZK																									
CAREPD																									
CASQIV																									
CASFJK																									
CASRSK																									
CASSSM																									
CASZSK																									
CBMSK																									
CBFSK																									
CCAGSK																									
CCDCSK																									
CCGQSK																									

Table 15. (part 4 of 31)

VARIABLE NAME	CHEN	KODE	KODE	CHENUS	EQUIP	CHENLEV	CHENUSP	DECN	CHEN1	CHENTAR	CHENWPS	CHENRNV	CHENW?	CHEN3	CHEN4	ZNOST	DUCINV	BTJTS	BTJTS	BTJTS	PEAGDM	KADMC	AIRBASE	CHENS	CHENDAM	DROPS	LINFR	SIMFR	OFFCOV	CRADV
CCSGSK																														
CEITWZ																														
CEPCHO																														
CEPCHS																														
CEPGHT																														
CEPD																														
CEPS																														
CEPT																														
CFEBA																														
CGKGS																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP																														
CHMDP										</																				

Table 15. (Part 5 of 31)

VARIABLE NAME	SUBROUTINES																								
	CHEM	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE
COKNSF																									
COKNSR																									
COKNSZ																									
COKSHF																									
COKSHR																									
COKSHZ																									
CRAC																									
CRAK																									
CRLRS																									
CRMRS																									
CRSAC																									
CSABAF																									
CSABAR																									
CSABAZ																									
CSCASA																									
CSDAW																									
CSDFS																									
CSDGW																									
CSDP																									
CSOR																									
CSINDA																									
CSRSOM																									
CTSCD																									
CWLS																									
DACFT																									
DAMPL																									
DCONEO																									
DCONTD																									
DOWDCD																									
DEGETF																									

Table 15. (Part 6 of 31)

VARIABLE NAME	SUBROUTINES																													
	CHEM	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE
DEPACC																														
DEPAWC																														
DEPDR																														
DFASN																														
DGSFT																														
DICT60																														
DID60																														
DIFCLA																														
DISACW																														
DLCT50																														
DLDS0																														
DLSDPL																														
DKSMPL																														
DP2																														
DP7																														
DPC2																														
DPC7																														
DPCHD																														
DPCHS																														
DPCHT																														
DPHT2																														
DPHT3																														
DPHT7																														
DPHTC2																														
DPHTC3																														
DPHTC7																														
DORAF																														
DORAR																														
DORAZ																														
DRAFT																														

Table 15. (Part 7 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	KCODE	CHEM6	CHEMLEV	EQUIP	CHEMSUP	DECON	CHEM1	CHEMTAR	CHEMWPS	CHEMIV	CHEM2	CHEM3	CHEM4	ZNDST	DUCINV	BFTGTS	RGTGTS	C2TGTS	PREAGDM	KADMC	AIRBASE	CHEM5	CHEMOAM	DROMS	LIMF	SIMCN	OFFCOV	CIRCOV			
DSA																																	
DSCZBA																																	
DSCZFS																																	
DSCZRS																																	
DSD																																	
DSFNBA																																	
DSRNBA																																	
DSRN1S																																	
DSSMPL																																	
DSSNCZ																																	
DSSNFS																																	
DSSNRS																																	
DVDPTH																																	
DVMNDP																																	
DVWDTH																																	
ECALFA																																	
ECBETA																																	
EFAGT																																	
EFCE																																	
EFEDA																																	
EFFDD																																	
EFFSHL																																	
EPWTD																																	
EPWTS																																	
EPWTT																																	
ERDWLE																																	
ESDASH																																	
EWDRHE																																	
FAAAFF																																	
FAAAFR																																	

Table 15. (Part 8 of 31)

[illegible]

Table 15. (Part 9 of 31)

VARIABLE NAME	SUBROUTINES																														
FAINDE																															
FAINDS																															
FAIRH																															
FAPKAD																															
FAPKDA																															
FAPKED																															
FASFRC																															
FATCIV																															
FAUSHL																															
FCABFD																															
FCAIA																															
FCASRB																															
FCASSS																															
FCOBFD																															
FCIP																															
FCPPC																															
FCVLS																															
FDAGPS																															
FDCRAD																															
FDCRAS																															
FDOPTH																															
FDSFRC																															
FDSPOB																															
EDSWIC																															
FDSWTH																															
FDWALD																															
FDWALS																															
FDWLAC																															
FDWLRA																															
FEAFBA																															

Table 15. (Part 10 of 31)

[illegible]

Table 15. (Part 11 of 31)

[illegible]

Table 15. (Part 12 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	KCODE	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM
FTSPUS																																	
FTSWTC																																	
FTSWTN																																	
FWDGAS																																	
FWDMAX																																	
GDRA																																	
GLPAS																																	
GLPGS																																	
HORD																																	
HOBBS																																	
HOBT																																	
IAASV																																	
IABAAG																																	
IABAS																																	
IABTA																																	
IACTWS																																	
IAFBA																																	
IAFSV																																	
IALBT																																	
IALBTC																																	
IALGT																																	
IALCTC																																	
IALRT																																	
IALRTC																																	
IBALD																																	
ICABTA																																	
ICADTA																																	
ICADTD																																	
ICASN																																	

Table 15. (Part 13 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	KCODE	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB	GHEB
ICDLB																																	
ICDLC																																	
ICDLR																																	
ICDLT																																	
ICH																																	
ICHEAT																																	
ICHST																																	
ICHTD																																	
ICMO																																	
ICMES																																	
ICMPLX																																	
ICMS																																	
ICMST																																	
ICPDHD																																	
ICPRB																																	
ICPRCZ																																	
ICPRR																																	
ICSM																																	
ICSMMA																																	
ICYCLE																																	
IDEL2																																	
IDELB3																																	
IDELC3																																	
IDELR3																																	
IDELTA																																	
IDLABA																																	
IDLBC3																																	
IDLCC3																																	
IDLIBA																																	
IDLRC3																																	

Table 15. (Part 14 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	KCODE	CHEM	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN	CHEN
IDLYD																																	
IDS8TD																																	
IDS8TS																																	
IDS8TT																																	
IDS8TC																																	
IDS8TN																																	
IDS8TSU																																	
TEML																																	
TEMLC1																																	
TEMLC2																																	
TEGGS																																	
TESC																																	
IFULL																																	
IGO																																	
IGSV																																	
IKASC																																	
IMAGE1																																	
IMAGE																																	
IMTYPE																																	
IMUTMF																																	
INCYL																																	
IND1																																	
IND2																																	
IND3																																	
IND4																																	
INDC1																																	
INDC2																																	
INDC3																																	
INDC4																																	
INDLB																																	

AD-A091 493

COMMAND AND CONTROL TECHNICAL CENTER WASHINGTON DC
INSTITUTE FOR DEFENSE ANALYSES TACTICAL WARFARE (TACWAR) MODEL.--ETC(U)
SEP 77 M C FLYTHE, P FINNEGAN, J REIERSON
CCTC-CSM-MM-237-77

F/G 9/2

UNCLASSIFIED

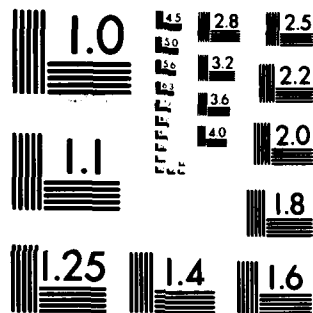
NL

4 - 4

AL

2001-1-1

END
DATE
FILMED
12-80
DTIC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Table 15. (Part 15 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	KCODE	CHEM8	CHEM1EV	EQUIP	CHEMSUP	DECON	CHEM1	CHEMTAR	CHEMPS	NCRAIV	CHEM2	CHEM3	CHEM4	ZNOST	DUCINV	BFTGTS	RGTGTS	CEGTGS	PEAGOM	KADMC	AIRBASE	CHEM5	CHEMDAM	DROPS	LINFA	SIMCN	OFFCOV	CIRCOV			
INDLC																																	
INDLR																																	
INOTPG																																	
INO														X																			
INTAGT																																	
INTDA																																	
INTDAA																																	
INTDAD																																	
INTDAH																																	
INTDAK																																	
INTDE																																	
INTDEA																																	
INTDED																																	
INTDEN																																	
INTDEK																																	
INTDM																																	
INTDS																																	
INTDSA																																	
INTDSO																																	
INTDSH																																	
INTDSK																																	
INTDVL																																	
IGMU																																	
IOSN																																	
KOSMAB																																	
IPCWZ																																	
KOPCH																																	
IPOPIN																																	
IPRO																																	
IPROO																																	

Table 15. (Part 16 of 31)

VARIABLE NAME	SUBROUTINES																																
IPREG																																	
IPRI																																	
IPRS																																	
IPRSO																																	
IPSHLA																																	
IPORA																																	
IPY																																	
IPYSUR																																	
IPRAP																																	
IRAC																																	
IRADTA																																	
IRADTD																																	
IRONS																																	
ISA																																	
ISCEF																																	
ISCL1																																	
ISCL2																																	
ISCL3																																	
ISMA																																	
ISMAI																																	
ISNABA																																	
ISNBA																																	
ISNTC																																	
ISNTN																																	
ISTAT																																	
ITA																																	
ITAGS																																	
ITAPS																																	
ITD																																	
ITM																																	
ITWPR																																	

Table 15. (Part 17 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	KCODE	CHEM8	CHEMLEV	EQUIP	CHEMSUP	DECON	CHEM1	CHEMTAR	CHEMWS	NCRTIV	CHEM3	CHEM2	CHEM3	CHEM4	ZNOST	DUICIV	BFTGS	RGIGS	GTIGS	PREAGOM	KACOMC	AIRBASE	CHEM5	CHEMDAY	DPROS	LINFR	SIMCN	OFFCOV	QIRCOV		
ITSWIC																																	
ITSWIN																																	
ITTD																																	
ITTPH																																	
ITSE RC																																	
ITJAM																																	
ITNAF																																	
ITNSP																																	
ITNSSM																																	
ITNW																																	
INORD																																	
INUCE																																	
INZBA																																	
ITANK1																																	
ITANK																																	
ACHEM																																	
KCON																																	
KINF																																	
KNUC																																	
KSUM																																	
KAGINO																																	
KAGPTO																																	
KCHATO																																	
KCHATS																																	
KCHATT																																	
KDNRC																																	
KDSMD																																	
KDSMS																																	
KDSMT																																	

Table 15. (Part 18 of 31)

VARIABLE NAME	SUBROUTINES																														
KISS																															
KPS																															
KPRAG																															
KPRDM																															
KPS																															
KPSY																															
KIARAG																															
KIADOM																															
KTER																															
KIENIR																															
KIERTA																															
KTYNS																															
LJOFT																															
MAU																															
MAXIA																															
MCF																															
MFOT																															
MNDSEC																															
MNFRD																															
MNFRS																															
MNERT																															
MNIE																															
MNSEC																															
MNIBUR																															
MNISCFC																															
MOT																															
MAC																															
NAB																															
NAC																															
NAFS																															

Table 15. (Part 19 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE
NAM																																	
NAS																																	
NB3																																	
NBA																																	
NBC3																																	
NBNLT																																	
NBCA																																	
NCRN4																																	
NCHATD																																	
NCHATS																																	
NCHATT																																	
NCHDW																																	
NCHRW																																	
NCHTW																																	
NCHTM																																	
NCHRAM																																	
NCRCA																																	
NCRN4																																	
NCSN																																	
NOWABA																																	
NOWCZ																																	
NOWIEG																																	
NOYCLE																																	
NCZ3																																	
NCZCE																																	
NCZCA																																	
NCZM4																																	
ND																																	
NDCRDP																																	
NDCRIP																																	
NDCRITP																																	

Table 15. (Part 20 of 31)

VARIABLE NAME	SUBROUTINES																																	
	CHEM	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE	KCODE
NDQV9																																		
NOFAB																																		
NDISA																																		
NDOR7																																		
NDORC7																																		
NDORAB																																		
NDS																																		
NDSAMS																																		
NDSMD																																		
NDSMS																																		
NDSMT																																		
NDVW																																		
NOWND																																		
NOWMS																																		
NOWMT																																		
NOWBI																																		
NEAEF																																		
NEDEF																																		
NEML																																		
NEPD																																		
NEPC																																		
NFMF																																		
NGS																																		
NWERS																																		
NWBR																																		
NIMMAG																																		
NIRITS																																		
MLANS																																		
MLSR																																		
NWBC																																		

Table 15. (Part 21 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	CHEM6	CHEMLV	EQUIP	CHEMSLP	DECON	CHEM1	CHEMTAR	CHEMWPS	NCRAVY	CHEM3	CHEM2	CHEM4	ZHST	DUCNV	BTGTS	NGTOTS	PRTGTS	PRAGDM	KADMC	AIRBASE	CHEW5	CHEMDAM	DHROS	LINER	SINCH	OFFCOV	GRICOV				
MOCDAB																																	
MOCDTC																																	
MODIST																																	
NPCAF																																	
NPCOF																																	
NPCND																																	
NPCVS																																	
NPCHT																																	
NPERAG																																	
NPOSD																																	
NPOSS																																	
NPOST																																	
NORAT																																	
NRTST																																	
NR3																																	
NR																																	
NR3																																	
NS																																	
NSBITO																																	
NSBIT1																																	
NSBIT2																																	
NSCWW																																	
NSCASP																																	
NSCATT																																	
NSCWSI																																	
NSCFF																																	
NSM																																	
NSI																																	
NSU																																	
NSUB																																	

Table 15. (Part 22 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KODE	KODE	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM	CHEM
NSUTD	X																																
NSWHS																																	
NSWHT																																	
NSWSE																																	
NT																																	
NTCRTP																																	
NICHS																																	
NTNHW																																	
NTTP																																	
NTSUDT																																	
NTWHT																																	
NTWSE																																	
NTWSU																																	
NTYP																																	
NW																																	
NWABA																																	
NWCCZ																																	
NWREG																																	
NYLO																																	
NYLS																																	
NYLT																																	
NZ																																	
OCNOC																																	
OLWRP																																	
PACAM																																	
PACSM																																	
PAFRAM																																	
PAJON																																	
PARHLS																																	
PARHMS																																	

Table 15. (Part 23 of 31)

VARIABLE NAME	SUBROUTINES																								
	CHEM	KCODE	CHEM6	CHEMLEV	EQUIP	CHEMSUP	DECON	CHEMI	CHEMTAR	CHEMWIS	NCRIN	CHEM3	CHEM4	ZNOST	DUCIN	BFTGS	RGTS	CZTGS	PREAGOM	KADMC	AIRBASE	CHEMS	CHEMDAM	DROMS	LINFR
PARKAB																									
PCSAB																									
PCSD																									
PDADFA																									
PDANS																									
PDASEB																									
PDASSS																									
PDDEEA																									
PDODFB																									
PDOSFB																									
PDORA																									
PDENS																									
PDOSAD																									
PDOSAD																									
PDIV																									
PDMMIX																									
PDPEFB																									
PDPSBS																									
PDHIL																									
PDSSAS																									
PDSSBS																									
PDSSMS																									
PDSSCA																									
PDWD																									
POWS																									
POWT																									
PENCOR																									
PFAPOS																									
PIAM																									

Table 15. (Part 24 of 31)

[illegible]

Table 15. (Part 25 of 31)

VARIABLE NAME	SUBROUTINES																								
	CHEM	KCODE	KCODE	GHEM8	GHEMLEV	EQUIP	CHEMSUP	DECON	CHEM1	CHEMTAR	CHEMWPS	INCRINV	CHEM2	CHEM3	CHEM4	ENDST	DUCINV	BFGTS	AGTGS	CATGS	PRAGCOM	KADMC	AIRBASE	CHEMS	CHEMDAM
PRDRP																									
PWNGTS																									
PWRCRP																									
PWSF																									
PWSSMS																									
PZDPH																									
DRAC7																									
ORAFS																									
ORAK																									
ORARS																									
RAACH																									
RAAFRM																									
RAASDT																									
RACAM																									
RACZ																									
RACFS																									
RACRS																									
RADBPT																									
RAEVP																									
RAFSDT																									
ROBPTA																									
ROBPTS																									
RDCFA																									
RDCFS																									
RDEXPA																									
RDEXPS																									
RDPLOY																									
RDPFSC																									
RDPFTH																									
RDPFSA																									

Table 15. (Part 26 of 31)

VARIABLE NAME	CHEM	KCODE	KCODE	CHEM8	CHEMLEV	EQUIP	CHEMSUP	DECON	CHEM1	CHEMTAR	CHEMWIS	NCNIN	CHEM2	CHEM3	CHEM4	ZNOST	DUCIN	BFOTIS	AGTIS	CZTIS	PREAGOM	KADOM	AIRBAC	AIRBASE	CHEM5	CHEMDAM	DRCS	LINER	SIMCN	OFFCOV	CIRCOV
RDSICS																															
RDSMS																															
RDSUR																															
RFATCM																															
RFATIM																															
RGSOT																															
RHO																															
RMACH																															
RMADP																															
RINGCHD																															
RINGCHS																															
RINGCHT																															
RINGOW																															
RINGSW																															
RINGTW																															
RPCZ																															
RPSICL																															
RPSIDL																															
RPSLCL																															
RPSLDL																															
RRAFL																															
RRLSPL																															
RMSPL																															
RMSPL																															
RSAMS																															
RSMIN																															
RVLUST																															
SABAF																															
SABAR																															
SABAZ																															

Table 15. (Part 27 of 31)

VARIABLE NAME	SUBROUTINES																															
	CHEM	KCODE	KCODE	CHEM6	CHEMLEV	EQUIP	CHEMSUP	DECON	CHEM1	CHEMTAR	CHEMWS	NCRIW	CHEM2	CHEM3	CHEM4	ZNDST	DUCINV	BFTGTS	RGOTGTS	GZTOTS	PREAGOM	KADMC	AIRBASE	CHEMS	CHEMOMAM	DROPS	LINFR	SIMON	OFFCOV	CINCOV		
SABGZ																																
SABFS																																
SABRS																																
SACFRB																																
SACZB																																
SACZBK																																
SAFRBK																																
SAMA																																
SAMD																																
SATCON																																
SAWA																																
SAMD																																
SNDLT																																
SCHNDP																																
SDIV																																
SEAADA																																
SEAFDA																																
SFRFE																																
SHAFAC																																
SIGDL																																
SIGY1																																
SINTDA																																
SLNGTH																																
SLSCAS																																
SLWCB																																
SMXRPL																																
SNASBA																																
SNLTN																																
SNMPTS																																
SNACM																																

Table 15. (Part 28 of 31)

VARIABLE NAME	SUBROUTINES																																
	CHEM	KCODE	CHEM8	CHEM5V	EQUIP	CHEMSUP	DECON	CHEMTAR	CHEMWAS	ACRINV	CHEM2	CHEM3	CHEM4	ZNST	DUCINV	BF7GTS	AG7GTS	CZ7GTS	PRFAGDM	KADMC	AIBASE	CHEM5	CHEMDAM	DROPS	LINE	SIMCN	OFFCOV	CIRCOV					
SRTAC																																	
SSMST S																																	
SSMGRS																																	
SUPAGN																																	
SUPIN																																	
SWAFDS																																	
SWASDS																																	
SYD 100																																	
SYSD																																	
SYSS																																	
SYST																																	
SZDSRD																																	
SZSD																																	
SZSS																																	
SZST																																	
TAACND																																	
TAASD																																	
TACAFR																																	
TACASR																																	
TACSR																																	
TADSR																																	
TADSZD																																	
TADTAF																																	
TADTAS																																	
TADTGS																																	
TADTSZ																																	
TAESRA																																	
TAESZD																																	
TAFSSD																																	
TAFSEZ																																	

Table 15. (Part 29 of 31)

[illegible]

Table 15. (Part 30 of 31)

[illegible]

Table 15. (Part 31 of 31)

VARIABLE NAME	SUBROUTINES																												
	CHEM	KCODE	KCODE	CHEM8	CHEM1EV	EQUIP	CHEMSUP	DECON	CHEM1	CHEMTAR	CHEMWIS	NCHEM3	CHEM3	CHEM4	ZNDST	DUCIN	BFTGTS	AGTGT	AGTGT	PRAGOM	KADMC	AIRBASE	CHEM5	CHEMDAM	DROPS	LINF	SIMON	OFFCOV	GIRCOV
XTMF																													
XOCD																													
XOCDP																													
XODIST																													
XPCAF																													
XPCDF																													
XSEFF																													
YAEF																													
YDEF																													
YPMF																													
YLOV																													
YLSW																													
YLT																													
YLTDR																													
YLTH																													
YLTPA																													
YLTRW																													
YLTSN																													
YLTSSM																													
YOCDP																													
YOCOPA																													
YOCOPR																													
YOCOR																													
YODIST																													
YPCAF																													
YPCDF																													
YSEFF																													

Table 16. Cross-reference Tables for Target Acquisition Model Routines and the Links for GROUND, AIRGRD, PSAIR, TC, SUPPLY, TIMET, and PSUMMY (Part 1 of 31)

VARIABLE NAME	SUBROUTINES																																
	TARACO	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE	TARACE
AACT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AACDS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AACS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AAGT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AAFCT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AAFS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AAMT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AAST	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ABASEF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ABASER	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ABASEZ	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ABATFS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ACCZ	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ACFS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ACHAT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ACHDM	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ACRS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ACSARA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ADT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AEDGE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AEEGE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AF	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AGST	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AIWS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
AKT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ALDS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ALBSR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ALRSZ	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ALTAAS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ALIAFS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ALIFAP	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ALTGS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 16. (Part 2 of 31)

VARIABLE NAME	SUBROUTINES																																
	TARCO	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC
ANFAAB																																	
ANLFD																																	
ANLFR																																	
ANLFZ																																	
ANHL																																	
ANDAAC																																	
ANDRAC																																	
ANRAAB																																	
ANRS																																	
ANTEMP																																	
ANLRS																																	
ANTHRS																																	
ANTHRS																																	
ANTHRS																																	
ANXPL																																	
ANWC																																	
ANWC																																	
ANSLRS																																	
ANSMRS																																	
APT																																	
ARSS																																	
ASRS																																	
ASUT																																	
AWT																																	
BNRS																																	
BNDS																																	
CAATSK																																	
CAARSK																																	
CAAZSK																																	
CACOF																																	
CACOR																																	

Table 16. (Part 3 of 31)

VARIABLE NAME	SUBROUTINES																																			
	TARAO	TARAC	TARCE	TADPA	BLKDATA	GROUND	GC	FEAMT	AIRGRD	ATRTAB	ORAFIL	ASGTR	PSAIR	TC	LIBA	NXDIV	AIRASG	SUPPLY	TRANPO	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	FIXX	OUTPUT	BLOCK1	TIMET	ASSIGN	IRATIO	IFBA	PSUMMY		
CAC0Z																																				
CADAM																																				
CADFSK																																				
CADRSK																																				
CADZSK																																				
CAEFSK																																				
CAERSK																																				
CAEZSK																																				
CAKGS																																				
CAKNSF																																				
CAKNSR																																				
CAKNSZ																																				
CAKSHF																																				
CAKSHR																																				
CAKSHZ																																				
CALSRIK																																				
CALSZK																																				
CAREPD																																				
CASCIV																																				
CASFJK																																				
CASRSK																																				
CASSIM																																				
CASZSK																																				
CBMSK																																				
CBFSK																																				
CCACSK																																				
CCDCSK																																				
CCECSK																																				
CCSKSK																																				
CEITWZ																																				

[illegible]

Table 16. (Part 5 of 31)

VARIABLE NAME	SUBROUTINES																																
	APACQ	APACA	APAR	BLKDATA	GROUND	GC	FEBSMT	ALPGRD	ALRTAB	DRPFL	ASQATR	PCATR	TC	IBR	NKDIV	ALRSG	SUPPLY	TRAMPQ	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	UPX	OUTPUT	BLOCK1	TMET	ASSIGN	IRATIO	FEBA	PSUMMY
LINKSZ																																	
COKSHF																																	
COKSHR																																	
COKSHZ																																	
CRAC																																	
CRAC																																	
CRLRS																																	
CRHRS																																	
CRSAC																																	
CSABAF																																	
CSABAR																																	
CSABAZ																																	
CSASA																																	
CSDAW																																	
CSDWF																																	
CSDGW																																	
CSDP																																	
CSOR																																	
CSMDA																																	
CSMDM																																	
CTSCD																																	
GWLS																																	
DACFT																																	
DAMPL																																	
DCONEQ																																	
DOONTO																																	
DDWDCD																																	
DEGEFF																																	
DEPACC																																	
DEPAWG																																	

Table 16. (Part 6 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TARACO	TARAC	TARACE	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP	TARAP
DEPOR																																		
DFASN																																		
DCSET																																		
DICT50																																		
DID50																																		
DICLA																																		
DISACW																																		
DICT50																																		
DLDS0																																		
DL5MPL																																		
DMSMPL																																		
DP2																																		
DP7																																		
DPC2																																		
DPC7																																		
DPCH0																																		
DPCH5																																		
DPCHT																																		
DPIN2																																		
DPIN3																																		
DPIN7																																		
DPINCH2																																		
DPINCH3																																		
DPINCH7																																		
DORAF																																		
DORAR																																		
DORAZ																																		
DRAFT																																		
DSA																																		
DSCBA																																		

Table 16. (Part 7 of 31)

SUBROUTINES		TAPCO	TARACE	TADPAR	BLADATA	GROUND	GC	FEBAUT	ALRGPD	ATRTAB	ORAFIL	ASGATR	PSAIR	TC	VIBA	NXDIV	ALRAGS	SUPPLY	TRANSY	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLIJ	FIXIX	OUTPUT	BLOCK1	TIMEY	ASSIGN	IRATIO	IFEBA	PSUMMY
VARIABLE NAME	DSCZFS																																	
DSCZRS																																		
DSD																																		
DSFNBA																																		
OSRNBA																																		
DSRNFS																																		
DSSMPL																																		
DSSNCZ																																		
DSSNFS																																		
DSSNRS																																		
DVDPTH																																		
DVMNDP																																		
DVWDTH																																		
ECALFA																																		
ECBETA																																		
EFAGT																																		
EFCE																																		
EFFDA																																		
EFFDO																																		
EFFML																																		
EFWTD																																		
EFWTS																																		
EPWTT																																		
EROWLE																																		
EDGASH																																		
EDORNE																																		
FAAAFF																																		
FAAAFR																																		
FAAAZ																																		
FAAARF																																		

Table 16. (Part 8 of 31)

VARIABLE NAME	SUBROUTINES																																		
	TARACO	TARACA	TARACE	TADPAR	BLKDATA	GROUND	GC	FEAMT	AIRGRD	ATRTAB	GRATIL	ASCATR	PAIR	TC	LIBA	NRDIV	AIRASC	SUPPLY	TRAMP	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	FIXIX	OUTPUT	BLOCK1	TIMET	ASSIGN	IRATIO	IFBA	PSUMMY	
FAAHR																																			
FAARZ																																			
FAAAZ								X																											
FAAAZH								X																											
FAAAZZ								X																											
FAABAA								X																											
FAABAD																																			
FAABAE																																			
FAABAS																																			
FAACTD			X											X																					
FABAFE			X																																
FABARS																																			
FABASS																																			
FABDRP																																			
FABDZF																																			
FABDZH																																			
FABSUP																																			
FACASA																																			
FACASD																																			
FACASE																																			
FACASS																																			
FACIDE																																			
FACFDS																																			
FADTMC		X	X																																
FADTMN																																			
FAGSCN																																			
FAGTDT																																			
FAINDA																																			
FAINDE																																			
FAINDS																																			

Table 16. (Part 9 of 31)

VARIABLE NAME	SUBROUTINES																																
	TARACO	TARACE	TARAPR	BLKDATA	GROUND	GC	FEBAUT	ALRPOD	ATRTAB	OPAFIL	ASGATR	TS	ILBA	NKDIV	ALRSG	SUPPLY	TRANPO	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	FIXLJ	OUTPUT	BLOCK1	TIME1	ASSIGN	IRATIO	FEBA	SUMMY	
FAKRN																																	
FAKPAD																																	
FAKUDA																																	
FAKED																																	
FASFRIC																																	
FATCIV																																	
FAUSHL																																	
FCABFD																																	
FCAIA																																	
FCASRS																																	
FCASSS																																	
FCDBFD																																	
FCMP																																	
FCPTC																																	
FCVLS																																	
FDAGPS																																	
FDCRAD																																	
FDCRAS																																	
FDPTH																																	
FDSERC																																	
FDSPOS																																	
FDSWTC																																	
FDSMTN																																	
FDWALD																																	
FDWALS																																	
FDWLAC																																	
FDWLRA																																	
FEAFBA																																	
FEBA																																	
FEBAZ																																	

Table 16. (Part 10 of 31)

VARIABLE NAME	SUBROUTINES																																
	TARCO	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC	TARAC
FEDW																																	
FEISF																																	
FGSTD																																	
FINDSS																																	
FINTRS																																	
FKLAA																																	
EKLSM																																	
EKLSMA																																	
FMBP																																	
FMDPT																																	
FMNC																																	
FMXE																																	
FOAEVP																																	
FOCRPG																																	
FODSUD																																	
FPABCP																																	
FPAPFC																																	
FPDCAS																																	
FPDRST																																	
FPKG																																	
FPMSCP																																	
FPRC																																	
FPSSPC																																	
FPWDU																																	
FORACZ																																	
FURAYS																																	
FORARS																																	
FRAACI																																	
FRACIO																																	
FRAD																																	

Table 16. (Part 11 of 31)

[illegible]

Table 16. (Part 12 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TAPAC0	TAPAC1	TAPAC2	TAPAC3	TAPAC4	TAPAC5	TAPAC6	TAPAC7	TAPAC8	TAPAC9	TAPAC10	TAPAC11	TAPAC12	TAPAC13	TAPAC14	TAPAC15	TAPAC16	TAPAC17	TAPAC18	TAPAC19	TAPAC20	TAPAC21	TAPAC22	TAPAC23	TAPAC24	TAPAC25	TAPAC26	TAPAC27	TAPAC28	TAPAC29	TAPAC30	TAPAC31	TAPAC32	
FTSWIN																																		
FWDGAS																																		
FWDMAX																																		
GDPA																																		
GLPAFS																																		
GLPAS																																		
GLPGS																																		
HOBD																																		
HOBS																																		
HOBT																																		
IAASV																																		
IABAAG																																		
IABAS																																		
IABTA																																		
IACTWS																																		
IAFBA																																		
IAFSV																																		
IALBT																																		
IALBTC																																		
IALCT																																		
IALCTC																																		
IALRT																																		
IALRTC																																		
IBALD																																		
ICABTA																																		
ICADTA																																		
ICAOTD																																		
ICASH																																		
ICDUB																																		
ICDLC																																		

Table 15. (Part 13 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TARACD	TARACA	TARACE	TADPAR	BLKDATA	GROUND	GC	FEBART	AIRGRD	ATRTAB	ORAFIL	ASCATA	PSAIR	TC	IIBA	NXDIV	AIRASC	SUPPLY	TRANPO	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXTU	IFIX	OUTPUT	BLOCK1	TIMET	ASSIGN	IRATIO	IFBA	PSUMMY
ICDUR																																		
ICDIT																																		
ICH																																		
ICHFAT																																		
ICNST																																		
ICHTD																																		
ICMD																																		
ICMES																																		
ICMPX																																		
ICMS																																		
ICNST																																		
ICPDND																																		
ICPRB																																		
ICPRCZ																																		
ICPRR																																		
ICSM																																		
ICSMA																																		
ICYCLE																																		
IDELZ																																		
IDELB3																																		
IDELC3																																		
IDELR3																																		
IDELTA																																		
IDLABA																																		
IDLBC3																																		
IDLOC3																																		
IDLIBA																																		
IDLAC3																																		
IDLYD																																		
IDRTD																																		

Table 16. (Part 14 of 31)

VARIABLE NAME	TARCO	TARCA	TAPAR	BLKDATA	GROUND	GC	FEBAIT	AINQD	ATFAB	QRAFL	ASGAT	ASAIR	TC	IBA	NXDIV	ALRASG	SUPPLY	TAPNO	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	OUTPUT	BLOCK1	TIME1	ASSIGN	IRATIO	IFEB	PSUMMY
IDSBT																																
IDSBT																																
IDSMT																																
IDSMTN																																
IDWTSU																																
IEML													X																			
TEMLC1													X																			
TEMLC2													X																			
IEOGS													X																			
IESC													X																			
IFULL													X																			
IGO													X																			
IGSV													X																			
IKASC													X																			
IMAGE1																																
IMAGE																																
IMTYPE																																
IRUTMF																																
INCYL																																
IND1																																
IND2																																
IND3																																
IND4																																
INDC1																																
INDC2																																
INDC3																																
INDC4																																
INDLB																																
INDLC																																
INDLR																																

Table 16. (Part 15 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TARCO	TARCA	TARCE	TARPAR	BLKDATA	GROUND	GC	FEBANT	AIRGND	ATRTAB	GRAPL	ASGTR	PSAIR	TC	IIBA	NXDIV	AIRASG	SUPPLY	TRAMPD	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLU	FIXIX	OUTPUT	BLOCK1	TIMEY	ASSIGN	IRATIO	IFEB1	PSUMMY
INTPG																																		
INO																																		
INTACT																																		
INTDA	X	X	X																															
INTDAA	X	X	X																															
INTDAD	X	X	X																															
INTDAH	X	X	X																															
INTDAK	X	X	X																															
INTDE	X	X	X																															
INTDEA	X	X	X																															
INTDED																																		
INTDEH																																		
INTDEK																																		
INTDM																																		
INTDS	X	X	X																															
INTOSA	X	X	X																															
INTOSD																																		
INTOSH																																		
INTDSK																																		
INTRVL																																		
IONU																																		
IOSN																																		
IOSMAS																																		
IOSMAZ																																		
IPOTCH																																		
IPOTIN																																		
IPRD																																		
IPRDO																																		
IPREG																																		
IPRI																																		

Table 16. (Part 16 of 31)

[illegible]

Table 16. (Part 17 of 31)

VARIABLE NAME	SUBROUTINES																																	
	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT	CCCT
ITD																																		
ITPR																																		
IUSFC																																		
IUTAM																																		
IVNAF																																		
IVNSP																																		
IVNSM																																		
IVNW																																		
IWORO																																		
IWLCE																																		
IWZBA																																		
IYANK1																																		
IYANK																																		
SCHEM																																		
SCON																																		
JNP																																		
JNLC																																		
JSUM																																		
KAGINO																																		
KAGTO																																		
KCHAD																																		
KCHATS																																		
KCHATT																																		
KCHSC																																		
KDSMD																																		
KDSMS																																		
KOSAT																																		
KFLAG																																		
KISS																																		
KPS																																		

Table 16. (Part 18 of 31)

VARIABLE NAME	SUBROUTINES																																
	TARCO	TARAC	TARAP	BLKATA	GROUND	GC	FERANT	ALIGRD	ATRTAB	DRAPL	ASCATN	KAIR	TC	IIBA	NXDIV	ALIRAG	SUPPLY	TRANPO	INOUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	IFIX	OUTPUT	BLOCK1	TIMET	ASSIGN	IRATIO	FEBA	PSUMMY
KPRIAG																																	
KPRDM																																	
KPS					X																												
KPSY																																	
KIARAG																																	
KIARDM																																	
KTER																																	
KTERIS																																	
KTERIA																																	
KTYWS																																	
LXOPT																																	
MAD																																	
MAXKIA																																	
MCF																																	
MFOPT																																	
MNDSFC																																	
MNFRD																																	
MNFRS																																	
MNFRY																																	
MNIE																																	
MNBSFC																																	
MNSUBR																																	
MNTRFC																																	
MOT																																	
NAAC																																	
NAB																																	
NAC																																	
NAPB																																	
NAM																																	
NAB																																	

Table 16. (Part 19 of 31)

VARIABLE NAME	SUBROUTINES																																
	TAPACO	TAPACE	TAPBAR	BLKATA	GROUND	GC	FEAMT	AIRMOD	ATRTAB	ORATL	ASDATL	PSLID	TC	IIBA	NKCIY	ALPAG	SUPPLY	INPUL	INCOL	LABEL1	LABEL2	MAIN	CYCLE	FILE1	FILE2	OUTPT	BLOCK1	TIME1	ASSIGN	IRATD	IFBBA	ASUMY	
NB3																																	
NBA																																	
NBC3																																	
NBNLT																																	
NBC4																																	
NBN4																																	
NCHATS																																	
NCHATT																																	
NCHOW																																	
NCHSW																																	
NCHTW																																	
NCOBAM																																	
NCR4																																	
NCRN4																																	
NLSM																																	
NLWABA																																	
NWCZ																																	
NWREG																																	
NCYCLE																																	
NCZ3																																	
NCZC3																																	
NCZC4																																	
NCZM4																																	
ND																																	
NDCRDP																																	
NDCRBP																																	
NDCRTP																																	
NDCR91																																	

Table 16. (Part 20 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TARCO	TARCA	TARACE	TADPAR	BLKDATA	GROUND	GC	FEBSMT	AIRGAD	ATRTAB	ORATL	ASGATL	MAIR	TC	IIIA	XXDIV	ALPAG	SUPPLY	TRANO	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	EXLU	UEIX	OUTMT	3LOCK1	TIMECT	ASSIGN	INAT.O	IEBA	PSUMMY
NDEFAB																																		
NDIBA																																		
NDDB7																																		
NDORC7																																		
NDRAB																																		
NDS																																		
NDSAMS																																		
NDSMD																																		
NDSMS																																		
NGSMT																																		
NDVNW																																		
NOWHD																																		
NOWHS																																		
NOWMT																																		
NOWSI																																		
NEAEF																																		
NEDEF																																		
NEML																																		
NEFD																																		
NESC																																		
NEMF																																		
NGS																																		
MHSNS																																		
MHSR																																		
MINHAG																																		
MINTS																																		
NLSNS																																		
NLSR																																		

Table 16. (Part 21 of 31)

VARIABLE NAME	SUBROUTINES																																
	TAPCO	TARCA	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR	TAPAR
NNSC																																	
NODAB																																	
NODPC																																	
NODIST																																	
NPCAF																																	
NPCDF																																	
NPCHD																																	
NPCMS																																	
NPCMT																																	
NPERAG																																	
NPOSD																																	
NPOSS																																	
NPOST																																	
NORAT																																	
NR3																																	
NR																																	
NREBT																																	
NRC3																																	
NR																																	
NBTD																																	
NBTS																																	
NBTT																																	
NCONW																																	
NCONSP																																	
NCRTP																																	
NCONW																																	
NSEFF																																	
NSN																																	
NST																																	
NSU																																	

Table 16. (Part 22 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TARACO	TARACE	TADPAR	BLKDATA	GROUND	GC	FEBAHT	AIRGRD	ATRTAB	ORAFIL	ASGATR	PAIR	TC	IIBA	NYOIV	AIRASG	SUPPLY	TRANPO	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	FIXX	OUTPUT	BLOCK1	TIME1	ASSIGN	IRATD	IFEBA	PSUMMY	
NSUB	X	X	X																															
NSUTD																																		
NSWHS																																		
NSWHT																																		
NSWSI																																		
NT																																		
NTCRTP																																		
NTCWSI																																		
NTLHNM																																		
NTTP																																		
NTSUOT																																		
NTWHT																																		
NTWSI																																		
NTWSU																																		
NTYP																																		
NW																																		
NWABA																																		
NWABZ																																		
NWREG																																		
NYLD																																		
NYLS																																		
NYLT																																		
NZ																																		
OCNOC																																		
OCWRP																																		
PAACAM																																		
PAACSM																																		
PAFRAM																																		
PAJOR																																		
PARHLS																																		

Table 16. (Part 23 of 31)

[illegible]

[illegible]

Table 16. (Part 25 of 31)

VARIABLE NAME	SUBROUTINES																																
	TARACH	TARACE	TARAPR	BLKDATA	GROUND	GC	FEARMT	AIKGM	ATRA	ORAFI	ASGATR	PSAIR	TO	IIA	XXDIV	A-RASG	SUPPLY	TRAMP	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	EXTU	UNIT	OUTPUT	BLOCK	TIMET	ASSIGN	IPATD	IFBA	SUMMY
PHATIS																																	
PHDRP																																	
PHNGTS																																	
PHICRP																																	
PHSE																																	
PHSSMS																																	
PZDPH																																	
ORACZ																																	
ORAFS																																	
ORAK																																	
ORARS																																	
ORACH																																	
RAAFH																																	
RAASDT																																	
RACAM																																	
RACGZ																																	
RACFS																																	
RACRS																																	
RADBPT																																	
RAEVP																																	
RAFSOT																																	
ROBPTA																																	
ROBPTS																																	
RDCEA																																	
RDCFS																																	
RDEXA																																	
RDEXPS																																	
RDPLOY																																	
RDPASC																																	
RDPATH																																	

Table 16. (Part 26 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TARCO	TARCA	TARCE	TADPAR	BLKDATA	GROUND	GC	FEBAHT	AIRMG	ATMTAB	ORAFIL	ASGATN	PSAIN	TC	IIG	NXDIV	AIRASG	SUPPLY	TRAMP	INPUT	INCOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	OUTPU	BLOCKI	TIMET	ASSIGN	IRAT O	IFEB	PSUMMY	
RDSIGA																																		
RDSIGS																																		
RDSIMS																																		
RDSUR																																		
RFATCH																																		
RFATNM																																		
RGSST	X	X	X	X										X																				
RND																																		
RMXCI																																		
RMXDP																																		
RNGCID																																		
RNGCHS																																		
RNSCHT																																		
RNGOW																																		
RNGSW																																		
RNGTW																																		
RPCZ																																		
RPSCL																																		
RPSDL																																		
RRAFL																																		
RRLSPL								X	X	X																								
RMSZL								X	X	X																								
RMSPL								X	X	X																								
RSAMS													X																					
RSWIN								X																										
RVLOST																																		
SABAF	X	X	X	X	0																													

Table 16. (Part 27 of 31)

[illegible]

Table 16. (Part 28 of 31)

VARIABLE NAME	SUBROUTINES																																		
	TARCO	TARCA	TARAC	TADPAR	BLKDATA	GROUND	GC	FEBANT	ALRGND	ATRTAB	GRATL	ASGATL	PSAIR	TC	IIBA	NRDLY	ALRASG	SUPPLY	TRAND	INPUT	INSL	LABEL1	LABEL2	MAIN	CYCLE	FILEL	FILEU	OUTPUT	BLOCK	TIME	ASSIGN	IRAT.O	IFB4	PSUMMY	
SOMPTS																																			
SRACH	X	X	X																																
SRAC																																			
SMSFS																																			
SSMSRS																																			
SUPASH																																			
SUPH																																			
SWAFDS	X	X	X																																
SWASDS	X	X	X																																
SYD100																																			
SYSD																																			
SYSS																																			
SYST																																			
SZDSRD																																			
SZSD																																			
SZSS																																			
SZST																																			
TACIND	X	X	X																																
TAASSD	X	X	X																																
TACAFR	X	X	X																																
TACASR	X	X	X																																
TACGSR	X	X	X																																
TADGSR	X	X	X																																
TADSD	X	X	X																																
TADSDZ	X	X	X																																
TADTAF	X	X	X																																
TADTAS	X	X	X																																
TADTGS	X	X	X																																
TADTIZ	X	X	X																																
TADTZA	X	X	X																																
TADSDZ	X	X	X																																
TADSDZ	X	X	X																																
TADSDZ	X	X	X																																
TADSDZ	X	X	X																																

Table 16. (Part 29 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TARCO	TARCA	TAPACE	TAPARE	BKDATA	GROUND	GC	FEBANT	AIRGND	ATRTAB	ORAFIL	ASCFIL	PSAIR	TC	IISA	NXDIV	AIRASG	SUPPLY	TRAMPD	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLJ	OUTUT	BLOCK1	TIMET	ASSIGN	RAT O	FEBA	PUMMY	
TASESZ	X	X	X																															
TDWPT																																		
TDWST																																		
TGSND	X	X	X																															
THFR																																		
TMFRC																																		
THINDP																																		
THORAC																																		
THWPC																																		
TLSSC													X																					
IMROGW														X																				
IMRSSC																																		
INOWP																																		
TPD						X																							X					
TSUTD																																		
TORA																																		
TRGM																																		
TRNT																																		
TSRSSC													X																					
TTIND																																		
TWD						X																							X					
TWSTD																																		
VAARA					O																													
VADRA					O																													
VANAW					X																													
VANDW					X																													
VELAAC					X																													
VELRAC	X	X	X																															
VGARA	X	X	X																															
VGARA					O																													
VHARS																																		
VHARS	X	X	X																															

Table 16. (Part 30 of 31)

VARIABLE NAME	SUBROUTINES																																
	TARCO	TARCA	TARAP	BLKDATA	GROUND	GC	FEBANT	ALRGND	QRTAB	ASAFIL	PAIR	TS	USA	VRDY	VRASG	SUPPLY	TANPO	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	FIXLI	FIXR	OUTPUT	BLOCK1	TIMET	ASSIGN	IRATD	FEBA	PSUMV	
VIADSF	X	X	X	X																													
VISTWZ																																	
VIVASF																																	
VIVAW																																	
VINDSF																																	
VINDW																																	
WCACAS																																	
WCDR																																	
WDIV																																	
WDIRP																																	
WFCMA																																	
WFCORA																																	
WFCRA																																	
WFCZA																																	
WIDDR																																	
WIDS																																	
WINDSP																																	
WPNK																																	
WPCZ																																	
WPTC																																	
WPTN																																	
WTAGRC																																	
WTAGTD																																	
WICAST																																	
WIDCTR																																	
WTAGRC																																	
WTNAST																																	
WVDATS																																	
WVDOTS																																	
YAEF																																	

Table 16. (Part 31 of 31)

VARIABLE NAME	SUBROUTINES																																	
	TARACO	TARACE	TARAPR	BLKDATA	GROUND	GC	FEAMT	AIRGND	ATRTAB	ORAFIL	ASQATR	PSAIR	TC	IIBA	NKDIY	AIRASG	SUPPLY	TRANSO	INPUT	INSOL	LABEL1	LABEL2	MAIN	CYCLE	EXLIJ	FIXI	OUTPUT	BLOCK1	TIMET	ASSIGN	RATD	FEBA	PSUMMY	
XDEF																																		
XFNF																																		
XOCD																																		
XOCDP																																		
XOORST																																		
XPCAF																																		
XPCDF																																		
XDEF																																		
YAEF																																		
YDEF																																		
YFNF																																		
YLDY																																		
YLSW																																		
YLT																																		
YLTOR																																		
YLTN																																		
YLTPA																																		
YLTRW																																		
YLTN																																		
YLTNMS																																		
YODP																																		
YODPA																																		
YODPM																																		
YODR																																		
YODST																																		
YPCAF																																		
YPCDF																																		
YSEF																																		

DISTRIBUTION

<u>ADDRESSEE</u>	<u>NO. OF COPIES</u>
OCTC Codes	
C124 (Reference and Record Set)	3
C124 (Stock)	6
C315	15
DCA Code 205	1
Documentation Center	1
C126 ATTN: Ms. Palmer	
11440 Isaac Newton Square	
Reston, VA 22090	
WMCCS ADP Management Division, J-3	1
ATTN: Mr. Goertzel	
The Pentagon	
Washington, DC 20301	
Defense Documentation Center	2
Cameron Station	
Building 5	
Alexandria, VA 22314	
Assistant to the Secretary of Defense	1
for Atomic Energy	
Room 3C128, The Pentagon	
Washington, DC 20301	
Defense Advanced Research Projects Agency	1
Director, Tactical Technology	
1400 Wilson Boulevard	
Arlington, VA 22209	
Defense Nuclear Agency	1
ATTN: Col. M. Johnsrud	
Director, Net Assessment Studies Office	
6801 Telegraph Road	
Alexandria, VA 20305	
Studies, Analysis and Gaming Agency, GPFD	15
The Pentagon	
Washington, DC 20301	
Deputy Under Secretary of the Army (OR)	1
Room 2E621, The Pentagon	
Washington, DC 20301	

DISTRIBUTION

<u>ADDRESSEE</u>	<u>NO. OF COPIES</u>
Department of the Army Office of the Chief of Research, Development and Acquisition ATTN: DAVA-RAZ-A Room 3E412, The Pentagon Washington, DC 20301	1
Department of the Army Office of the Deputy Chief of Staff for Operations and Plans ATTN: DA'IO-ZD, Mr. Louer The Pentagon Washington, DC 20301	1
U.S. Army Concepts Analysis Agency (CAA) ATTN: MOCA-MR 8120 Woodmont Avenue Bethesda, MD 20014	2
Director, TRADOC Systems Analysis Activity ATTN: LTC John Hesse White Sands Missile Range New Mexico 88002	15
Commandant, U.S. Army War College Carlisle Barracks Pennsylvania 17013	1
Office of the Chief of Naval Operations Systems Analysis Division (NOP96C) Room 4A526, The Pentagon Washington, DC 20301	
Commanding General Marine Corps Development & Education Command ATTN: Director, Development Center Quantico, VA 22134	1
Office of the Assistant Secretary of the Air Force (Research and Development) Room 4E968, The Pentagon Washington, DC 20301	1

DISTRIBUTION

<u>ADDRESSEE</u>	<u>NO. OF COPIES</u>
Office of the Assistant Chief of Staff, USAF (Studies and Analysis) Room 1E388, The Pentagon Washington, DC 20301	1
U.S. Arms Control and Disarmament Agency 21st Street and Virginia Avenue, N.W. Washington, DC 20451	1
Institute for Defense Analyses ATTN: Mr. Kerlin 400 Army Navy Drive Arlington, VA 22202	5
SHAPE Technical Center ATTN: Mr. Rex Goad APO New York 09159	2
Computer Science Corporation ATTN: Ms. Flythe 400 Army Navy Drive Arlington, VA 22202	5
	<hr/> 84 TOTAL

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (when data entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT. ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Institute for Defense Analyses Tactical Warfare (TACWAR) Model Program Maintenance Manual		5. TYPE OF REPORT & PERIOD COVERED
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR (s) Flythe, Mary Catherine; Finnegan, Pat; Reiersen, Jim; Truscynski, Peter; Tsang, Theresa; and Lee, John		8. CONTRACT OR GRANT NUMBER (s) DCA 100-74-C-0002
9. PERFORMING ORGANIZATION NAME & ADDRESS Computer Sciences Corporation 400 Army Navy Drive Arlington, VA 22202		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME & ADDRESS Command and Control Technical Center Support Center (C315) The Pentagon Washington, D.C. 20301		12. REPORT DATE 6 September 1977
		13. NUMBER OF PAGES 947
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		16a. DECLASS/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in block 20, if different from report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (continue on reverse side if necessary and identify by block number) ground-air warfare, nuclear warfare, chemical warfare, theater-level model, military operations research, defense planning, ground forces, tactical air forces		
20. ABSTRACT (continue on reverse side if necessary and identify by block number) The Institute for Defense Analyses Tactical Warfare (TACWAR) model is a fully-automated combat simulation that can be used to assess the interaction of combat forces employing conventional, nuclear, and chemical weapons in a theater- wide campaign. This document presents the information necessary for programmer personnel to maintain the TACWAR model.		